Høgskulen
på Vestlandet

BARNkunne
Senter for barnehageforsking



Early Childhood Education for Sustainability

Jubileumsbok for BARNkunne – Senter for barnehageforskning

Editors: Elin Eriksen Ødegaard, Veronica Bergan, Aihua Hu

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The vision of KINDknow - the Center for Kindergarten Research:

Early childhood education (ECE) research for a more just and sustainable future for our children.

KINDknow pioneers research, knowledge development and innovation to promote sustainable futures based on the interests of children and kindergartens.

Social mission: KINDknow conducts outstanding research, knowledge development and innovation, and is an attractive partner and premise provider for the kindergarten sector.

In 2023, we will have been operating as a research center for five years with funding from the Research Council of Norway, Western Norway University of Applied Sciences, Bergen Municipality, UiT - The Arctic University of Norway and the University of Stavanger. In collaboration with more and more partners, we have in 2023, a growing research profile with additional funding from the Research Council of Norway, Regional Research Fund Western Norway, Regional Research Fund Arctic, Tromsø Municipality, Nordplus, Erasmus Plus, Erasmus Mobility, Kinn Municipality, Osterøy Municipality, Kanvas, etc. Thank you very much!

BARNkunne - Senter for barnehageforsknings visjon:

Barnehageforskning for en mer rettferdig og bærekraftig fremtid for barna våre.

BARNkunne driver pionerarbeid knyttet til forskning, kunnskapsutvikling og innovasjon for å fremme bærekraftige fremtider med utgangspunkt i barn og barnehagens interesser.

Samfunnsoppdrag: BARNkunne driver fremragende forskning, kunnskapsutvikling og innovasjon, og er en attraktiv samarbeidspartner og premissleverandør for barnehagesektoren.

I 2023 har vi vært i drift som forskningssenter i fem år med grunnfinansiering fra Forskningsrådet, Høgskulen på Vestlandet, Bergen kommune, UiT – Norges arktiske universitet og Universitetet i Stavanger. I samarbeid med stadig flere samarbeidspartnere har vi, i 2023, en økende forskningsportfolie med ytterligere finansiering fra Forskningsrådet, Regionalt forskningsfond Vestland, Regionalt forskningsfond Arktis, Tromsø kommune, Nordplus, Erasmus +, Erasmus Mobility, Kinn kommune, Osterøy kommune, Kanvas, m.fl. Vi sier tusen takk!

Foreword

Childhood memories, for most of us reading books like these, are treasures that brighten our day, often unexpectedly. They take us back to a time where things were wonderful, often unexpected, full of surprise, play and mystery. Most of us have grown up in relatively comfortable environments that allowed us to experience the world somewhat freely without having to worry too much about the future. My own childhood certainly fits this portrayal of an ideal youth during which I could roam the streets of my neighbourhood in a small town near Leiden, The Netherlands, as well, as the agricultural land and natural wetlands on the town´s edge. Often alone, sometimes with friends. The people in the neighbourhood knew who I was, the traffic was moderate and slow, there was no violence in public (although I suspect now, looking back, there were homes where there was domestic violence); the local environment afforded the free wondering and exploring as long as I returned home, on time for dinner. And, even when I was late, there was no panic, at most a reminder that I should be back on time next time.

At a very young age I was allowed to walk and later bike to school. First alongside my mom, later on my own. I vividly remember the route to school and how we would often linger and play after school; playing with marbles, football on the school ground or the nearby field, climbing the school's rooftop when the teachers were gone. My own children, now young adults, too enjoyed a similar youth, although during their youth the digital age in some ways started hijacking their sense of place and neighbourhood connections by creating a world that made the virtual more interesting than the real.

There are both affordances and distractions at play in a child's world that affect sustainability. In the Nordic context this local environment tends to be rather pristine and clean. The air we breathe, the water we drink, the food we eat, even in the more urbanized and disadvantaged neighbourhoods, and many other affordances of a healthy and friendly place to roam, are all of reasonable, if not of excellent quality. How different can these affordances be depending on where you are born in this world. In Delhi, India, schools had to be closed for an average of almost 30 days a year over the last five years. Kids often have to stay at home and, where possible, resort to online classes. In many places around the globe, it is simply too hot to be in school or to be able to play, learn and live. In many parts of the world a walk to school is a major health hazard. In both the global North and South there are tendencies away from biophilia towards videophilia, away from community and solidarity, self-care and personal resilience, but also away from meaningful play and social engagement towards interactions mediated by technology and algorithms that serve the (outdated but stubborn) capitalist economy.

Growing up in the Anthropocene is difficult no matter where you are, although more difficult for some than for others undoubtedly. How to remain hopeful on a planet in trouble is becoming a critical psychological and pedagogical question. Needless to say, the younger one is, the more burning the question is. My generation, born in the 1960s, in all likelihood will be fine for the next two decades or so. Again, I am writing this from a rather comfortable position in a rather comfortable country. The dysfunctional times we live in poses huge existential questions for all of us, but certainly for those working with young children. What should early childhood education and care (ECEC) look like, consist of, cultivate and transgress in order to create hopeful futures and childhoods that are foundational for living well, equitably and healthily on this Earth without compromising the possibilities of others to live such lives as well? But also, without compromising planetary boundaries?

Here I'd like to enter KINDknow or rather: KindNOW!, exclamation mark. The KINDknow - Center for Kindergarten Research, as stated in the introduction, provides insights into kindergarten-relevant research that relates to sustainable futures. It is a personal honour to be affiliated with the group. The name has always struck me as it contains a variety of key ideas when unravelling it a bit. For one, being 'kind' is one prerequisite to sustainability. Kind also means 'child' in German and in my own native Dutch and, in a way also in English when considering the concept of 'kindergarten' which literally means a garden for children. It was coined by Friederich Froebel in Germany, late 19th century who wrote: "Children are like tiny flowers; they are varied and need care, but each is beautiful alone and glorious when seen in the community of peers." Then there is the NOW which stands for Norway and the Nordic region in which KINDknow is situated. NOW - especially when adding the exclamation mark– also indicates the sense of urgency that most of us feel. We must not just talk, contemplate and plan our next conference of publication, we must also act now!

This anniversary collection contains a rich picture of cutting-edge thinking, research and reflexive practices that show that the seeds of transition in education, also in the early years, are being planted and that there are already many tiny flowers popping up that will create many gardens and landscapes that will breathe sustainability and generate memorable childhoods. It is quite remarkable that KINDknow has in a relatively short time created a living tissue of nodes in ECEC that seek to approach the challenge of sustainability through the eyes of the younger generation while being mindful to the emancipatory mandate of education, one that pays attention to agency, relationality, autonomy, an ethic of care and creating hope for the future. I congratulate the editors and contributors and the KINDknow team for this major accomplishment and can only wish that the insights of the work you are about to discover, will travel further and strengthen the much-needed transition movement that will ultimately lead to a world in which children can roam freely on their own terms without worrying about the future.

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October 2023, Wageningen, The Netherlands

Introduction

With this anniversary book, KINDknow - Center for Kindergarten Research provides an insight into kindergarten-relevant research that relates to sustainable futures. If we as a society are to achieve the Sustainable Development Goals (SDGs), we must focus on societal and planetary challenges in education. In Early Childhood Education & Care (ECEC) it is important to see the institutional spaces as a place for good childhoods, where play and exploration give pleasure, learning, and growth for each child enrolled. When we can see this, we can also see quality education for all.

The articles in this collection are the result of a strong commitment from the research community at KINDknow. The articles cover theory development, review articles, case studies, other empirical studies, and articles with the aim of putting sustainability on the agenda in the kindergarten sector.

The aim of this collection of articles is to make available to more people a series of peer-reviewed publications on the topic of sustainability in the kindergarten sector. The researchers and authors at KINDknow - Centre for Kindergarten Research, have for many years, even before the start of the research center, been concerned with issues of sustainability. Some have a background as researchers in natural sciences, climate and fisheries, while others have spent several years researching cultural studies, educational sciences and ECEC in particular. At Western Norway University of Applied Sciences, the milieu has a long background in doing research on processes of cultural formation, lived democracy, collaborative exploration, and good governance in ECEC institutions and what such perspectives can mean in the ECEC sector. At UiT - the Arctic University of Norway, there is a strong background in researching diversity, Sami culture, place, digitalisation, and cultivation with children.

Some of the authors also have a background as nationally and internationally engaged in organisations working for sustainable futures. The organisations include, but not limited to, *World Organization for Early Childhood Education* (OMEP) and the researcher network *Transnational Dialogues: Research in Early Childhood Education for Sustainability* (TND Community), some of the researchers also participate in the Norwegian network National research network for sustainability and culture formation (NABU). In these networks, researchers at BARNkunne have held leading positions, both nationally and internationally (Elin Eriksen Ødegaard, Åsta Birkeland, & Aihua Hu). OMEP has nearly 70 member countries and has representatives from all continents. They work specifically on issues to promote children's right to play and learn and their right to protection from war and hardship. Sustainability has been on the agenda of OMEP since very early stage. The TND community engages more than 60 kindergarten researchers who are at the international forefront of publishing research on sustainability in kindergarten, where KINDknow's researchers are among them (for example Barbara Sageidet, Marianne Presthus Heggen, Elin Eriksen Ødegaard). The NABU network is anchored at Inland Norway University of Applied Sciences, and KINDknow's researchers were engaged as board member (Marianne Presthus Heggen) and in the election committee (Veronica Bergan).

We can also see a turn towards a greater interest in the global and the local, in place and culture, in materiality, and in man as biology, which must be studied in relation to nature. The articles show that the authors are more or less influenced by the debate about the era in which we live. The concept of the Anthropocene is also highlighted; how climate change raises questions of value about what is relevant to ECEC research. These are questions that some of the authors raise in the articles. Several of the authors teach about sustainability in ECE teacher education programs (BLU), master programs, various postgraduate and further education programs and are raising questions and creating knowledge and understanding with students.

There are several reasons for bringing these articles together in a book. KINDknow's vision for research is that focusing research and communicating our knowledge on sustainability is the most important thing we can do for children's future and for our planet.

Today we live in uncertain times. There are several crises in the world and a multitude of global difficulties that affect children greatly. We are also living through a number of paradoxes that may be worth putting into words. One example of such paradoxes is that children have many rights, more than ever before in history, yet children are still very vulnerable, at least as vulnerable as children have been throughout history. Along with persons with disabilities, people in refuge and/or in crisis, people in illness, and older adults, children are

vulnerable. Children lose their right to play and their right to protection when crisis, war, or extreme weather hits them. Another example of a paradox is that there is great global attention on children's education and girls' right to education. Yet many girls are unable to exercise their rights, either because they live in conditions where education is not available, or they are too poor to afford it, or they live in regimes that actively prevent girls' right to education. Another paradox is that there is great political consensus and attention that we need to improve conditions for children, and end poverty, wealth becomes an ideal for many, and changing policies to end poverty seems to be a huge and impossible problem to solve. However, it may not be impossible, and the mission of kindergartens includes to realise social equality and prepare future generations for collaboration and sustainable practices. But we know that what characterizes wicked problems such as poverty is that one sector cannot solve them alone (Earle & Leyva-de la Hiz, 2021).

In the educational sector, the ECEC sector in the Nordic countries, together with researchers in other parts of the world, has been at the forefront of using the concept of sustainability and adapting practices of sustainability to the longstanding tradition of implementing children's rights, outdoor play, nature and culture excursions, inclusion of all children and child welfare. The ECE teacher education programmes were early to offer courses that highlighted the theme, and the operationalisation of what sustainability should mean was expanded in the framework plan in Norway. In this process, the concept of sustainability was expanded and treated as a fundamental value for Norwegian kindergartens. In previous versions of the framework plan, sustainability was a concept that belonged to the learning area of science and referred to as learning about and protecting nature. There was a shift with the new framework plan for kindergartens released in 2017. Now it should be included in all activities in kindergartens.

What does sustainability mean in ECEC context?

The task of contributing to sustainable futures is given to kindergartens through the *Framework Plan for Kindergartens: contents and tasks* (Kunnskapsdepartementet, 2017). Here we see an operationalisation of sustainability that is closely aligned with the UN's agenda. Let's look at the some of the core values in this framework plan:

- The children shall learn to look after themselves, each other and nature. Sustainable development covers the natural environment, economics and social issues and is key to preserving life on Earth as we know it. Kindergartens therefore play an important role in promoting values, attitudes and practices for more sustainable communities.
- Sustainable development is about how people who are alive today can have their basic needs met without denying future generations the opportunity to fulfil theirs. It is about thinking and acting locally, nationally and globally. Kindergartens shall help make the children understand that their actions today have consequences for the future.
- Kindergartens shall foster the children's ability to think critically, act ethically and show solidarity. Children shall be given opportunities to give care and to look after their surroundings and the natural environment. For Sami children, this means living in harmony with, making use of and reaping the land.
- The children shall be given outdoor experiences and discover the diversity of the natural world, and kindergartens shall help the children to feel connectedness with nature.

There are major objectives in this mandate for kindergarten teachers from the regulations to the Kindergarten Act. In the 2017 Framework Plan, the concept of sustainability was given a larger and clearer place than before. By placing the concept under the core value, sustainability is now one of the main concepts for the kindergarten sector in Norway. However, a framework plan will always be a negotiated text that sets out certain main features. There will always be something missing. And as time goes by, new issues arise that require a framework plan to be renegotiated. A framework plan is also a regulation that requires adaptation to local and current conditions. In presenting our research on sustainability, we contribute to an ongoing dialog about what sustainability can mean in the kindergarten sector. It thus serves as operationalizations and conceptualizations of sustainability and provides examples of practices that can contribute to achieving these goals. Some of the articles are also an operationalisation of SDG17, through partnership and research where we collaborate with different actors in practices—children, staff, leaders and other partners.

Let's zoom out a little; many people know that it was a Norwegian woman and lead politician who led the work on the report *Our Common Future* (Brundtland, 1987). This report has made important contributions to the international agenda, and we can see clear traces of it in the Norwegian framework plan for kindergartens. Together with colleagues in the World Commission on Knowledge and Development, Gro Harlem Brundtland has defined sustainable development that is still often used today. On page 42 of this report, it reads «*sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs*». This definition is similar to the one currently found in the Norwegian framework plan. Our Common Future is a text that has stood the test of time. It is worth noting that the report takes a broad and deep approach to the concept, even though today many people would say that it does not go far enough in limiting human use of natural resources.

In line with the UN's Children's Rights, which were negotiated by a group of ladies after World War II until 1989, when the Convention on the Rights of the Child was adopted by the UN General Assembly. This definition of sustainability is also central to the UN's 2030 Agenda. And 17 SDGs have been formulated then. These goals are an international work plan to eradicate poverty, fight against inequality and stop environmental degradation by 2030. The goals are important. And KINDknow contributes, together with many other actors, to realising the SDGs through conducting ECE research.

KINDknow researchers discuss the concept of sustainability in a number of publications. For example, several of the authors contribute to conceptualisations of social and ecological sustainability. They point to kindergarten teacher as a role model, a facilitator, someone who walks together with children (co-walker) to educate and cultivate young children's care for nature and each other (Bergan et al., 2021; Bergan et al., 2023). Several of the authors adopt an ecocritical perspective that criticises the definition of sustainability that puts people at the center (Bergan et al., 2021; Bergan et al., 2023; Heggen et al., 2019). Others focus on social sustainability, understood as trust, belonging and access to benefits such as education, good relationships and good local environments (Boldermo & Ødegaard, 2019; Hu & Ødemotland, 2021). For years, KINDknow has also highlighted the concept of collaborative exploration to conceptualise and theorise sustainable practices in kindergarten. One example of this is the concept of collaborative exploration (Fleer et al., 2021; Hedegaard & Ødegaard, 2020; Ødegaard & Borgen, 2021). Another example is a study that argues for and shows how the dimensions of good governance, economic, ecological and social sustainability are interrelated and overlapping (Grindheim et al. 2019). It has also been interesting to compare how framework plans from different countries treat the concept of sustainability (Li & Birkeland 2019, Almeide, Hu & Inoue, 2022).

The concept sustainability, which we are inspired by and doing research on, is value-based, as most in social science research (Andersson, 2018). In our articles, this may involve implicit and explicit norm. Not making values the basis for research poses a risk of being blind to the values inherent in the premises for research and of stakeholders. Being clear about the values that strategically underpin a research profile creates transparency and can clarify an ethical mentality. Some will say that the 2030 Agenda has goals that are vague and that they do not go far enough. We can certainly agree with that. For example, is it possible to achieve the goals without lowering the living standards of those countries that consume the most? Several of our researchers disagree with how SDG 4 on quality education is formulated in the Agenda. The wording of this goal can be challenging for ECEC researchers, because ECEC as we know it, goes beyond the discourse on schooling and school preparation (a ready for school approach). In our perspective, quality education must address ECEC role in building a good foundation for life. This implies to secure good childhood experiences and building character and resilience.

We do not disagree that quality in school education is very important. However, since we work for the Norwegian kindergarten sector, we are of course concerned that children's life and development before school age is in many respects even more important. Good growing-up conditions throughout childhood are well illustrated in children's rights, not least Comment 7 from 2005 in the Convention on the Rights of the Child. The many expressions of the youngest children are important to recognize, for example, to value play imply understanding children's participation and involvement in their own lives now and in the future. A child's life must be valued for what it actually is, at any given time, in addition to being forward-looking on behalf of the child and for the future. To talk on behalf of children's need for both protection and voice, is urgent in times of war, crime and crises.

Not all people know much about the ideas that were behind the sustainability thinking, rhetoric and policy-making we see today. So let's take a look back in time.

If we go back in history, there are many possible starting points. Indigenous peoples have lived in close harmony with nature through sustainable harvesting and nature conservation. The term sustainability was first used in 1713 (Grober, 2007), and it is by going back to the historical roots of it that one finds a livelier and more shimmering concept than the more technocratic 'flavor' it has today. The first time that the term was used was related to forestry. Hans Carl von Carlowitz believed that one should think for the long run when taking wood out of the forest. In his time, lumbering had required an overuse of timber, resulting in the death of the forest. Carlowitz believed that better planning was needed. Man should lumber to the extent so that the trees in the forest could continue to grow and the forest could continue to exist.

In 1974, thirteen years before the Brundtland Report, the term sustainability was used to create a generic term for guidelines for socio-ethics (Grober, 2007). This referred to responsible societies, describing them as fair and sustainable societies. The term marriage 'husbanding' was also used to describe that the future will require a marriage of resources and a reduction of expectations of global growth. It requires a transition to a global welfare society based on sustainability on behalf of future generations. If we go back even further, we find the term 'sustained yield', which can be directly translated into Norwegain 'bærekraftig utbytte'. This term was used from the mid-19th century and was translated from the German word 'nachhaltig', which is often combined with nutze, meaning 'long-term benefit', and is applied to tree planting. This is a way of thinking that can be found in different parts of a society and history of cultivation. In philosophy, we can find this in classical utilitarianism in the form of maximum benefit for the greatest number of people. Later, it entered the debate in the consumption of natural resources. The use of natural resources should follow the principle of maximum benefit for the greatest number of people and planet in the long term.

In Norway and far beyond, the ecophilosopher and conservationist Arne Næss has also had a strong influence. Næss introduced the distinction between shallow and deep ecology and launched a deep ecology platform (1987). This platform went further in the direction of safeguarding the planet than the Brundtland Report did. Here he brings up the value and welfare of all human and non-human life on Earth as a value in itself, independent of the usefulness for human purposes. Næss describes ecophilosophy or ecosophy where ecological harmony and philosophy transcend each other. Arne Næss's philosophy was embraced by many Norwegian nature protectionists from the 1970s to present.

So, what does this have to do with ECEC research? These thought and mentality resonate throughout the history of kindergarten. From the very beginning, ECEC didactics has been rooted in the upbringing and education to live in and with nature through cultivation and foraging, cooking and outdoor life. This is evident in Friedrich Froebel's classic work in the history of kindergarten, *The Education of Man* (Froebel, 1898 [2005]), where he writes about how man is connected to nature and how all education must allow children to discover such connections. The topic of environmental protection entered the kindergarten sector at an early stage, at the same time as it was put on the agenda of conservationists and society. But the concept of sustainability came to kindergarten somewhat later.

Did you know how sustainability work started in the kindergarten sector? The first international meeting on sustainable development was held in Gothenburg in 2007 (Davis et al, 2008). It was a collaboration between the Swedish National Commission for UNESCO and OMEP. This meeting resulted in recommendations that early childhood education (ECE) is a natural starting point for promoting access to education for all people within the framework of lifelong learning. Education for sustainability must be based on dialogue, participation and involvement, and valuing participants' knowledge and experiences (Pramling Samuelsson et al., 2021).

Did you know that a group of researchers in KINDknow are also active in OMEP, who launched the concept of sustainability for the kindergarten sector in Norway? In Norway, work on sustainability in and for kindergarten started in 2009, when Norwegian OMEP, in collaboration with UNESCO, the Norwegian Union of Education and Training, Bergen University College (now Western Norway University of Applied Sciences), and VilVite, Bergen Science Centre, organized the very first national conference on sustainability in kindergarten. Two more such national conferences on sustainability for the kindergarten sector were held in Bergen in 2010 and 2011 respectively. The first two were initiated and led by KINDknow's centre director, who was then the president of Norwegian OMEP and was given the task to launch sustainability for the kindergarten sector in Norway. Norwegian OMEP, in collaboration with kindergartens in Bergen and Tromsø, also actively participated in creating data for the large international study on dialogues with children about sustainability. This study was led by Elin Eriksen Ødegaard from Bergen University College and Erik Duncan from Bergen Municipality. A total of 9750 children from 35 countries participated in this large study (Engdahl, 2015).

The dialogue with children started from a picture of a globe surrounded by children washing it. This image created interesting dialogues with the children, and also among kindergarten teachers and us who led the project from OMEP Norway. We received criticism that it was not the children's responsibility to keep the earth clean, because an interpretation of the picture conveys such message. The study and the criticism of the image that formed the basis of dialogues with the children and created a debate about the value of kindergarten as an arena for education (Ødegaard, 2012; Ødegaard & White, 2016) and the kindergarten teacher as a responsible value builder (Birkeland & Grindheim, 2021; Grindheim & Aaserud, 2020). Later, discussions about children as eco-citizens were initiated (Heggen et al., 2019). Here it was argued that it is no longer appropriate, in kindergarten research, to make a sharp distinction between children's perspectives and those of adults (kindergarten teachers) because we see in our research data that adults build on children's initiatives, as well as children responding to adult initiatives. This ontological turn away from the child's perspective as opposed to the adult's perspective, but rather see these in dialogue with each other, or as negotiation and exchange, which can be found in several of the studies that are also part of dialogues with other environments working with sustainability.

When the KINDknow center held its opening conference in 2018, the director highlighted the importance of researching on behalf of children and on behalf of future generations. She also emphasized that KINDknow had a clear profile with a collaborative research design, which can realize the goals of SDG 17.

We know that collaboration is needed to achieve sustainable development. A clear signature of the research from KINDknow is that the research design will be participatory and often co-created between different actors and stakeholders in the kindergarten sector and elsewhere. With such designs, we create new knowledge that is validated through the designing processes. This approach refers directly to SDG 17, which aims to strengthen means of implementation and revitalise the global partnership for sustainable development. We contribute with new and strong partnerships, and we collaborate with the government, the kindergarten and civil society, but our designs are foremost collaboration with children, staff and parents. We train our ability and capacity for collaboration and knowledge creation. You can read about this and more here. Hope you enjoy it!

Our research contributions on sustainability

To work with the mandate for sustainable futures, we need to theorize, find the status of the field, discuss and concretize by giving examples. All the articles we present here can be said to be a result of the attempt to penetrate deeper into understanding both the international UN Agenda 2030, international research on sustainability in the ECEC field and how Norwegian kindergartens, so far, relate to the core value sustainability in the framework plan. Our contributions include theoretical contributions, literature reviews (systematic reviews), comparative contributions and ethnographical studies, and more. Several of the articles we present are developed based on practices in kindergartens, which involves theorisation based on observational studies and co-creation with kindergarten children, staff and other child experts.

Common to the selection of articles in this book is that they all are published in scientific publication channels with open access (Creative Commons CC BY 4.0). Some of the articles address the topic of sustainability clearly and directly with the concept 'sustainability' as one of the keywords in the publication, while others that we have selected address one or more of the UN SDGs. This means that there is a selection. In addition to publishing scientific articles in open access channels, KINDknow has also published articles and books with publishers that do not allow republication, feature articles, popular science articles in professional journals for kindergarten teachers and films/videos. To find a complete overview of the community's publications, visit the website of KINDknow at www.hvl.no/en/kindknow, and the website of the Research Council of Norway's project bank (prosjektbanken.forskningsradet.no/en/project/FORISS/275575).

Below provides key messages of the selected articles from 2018-2023 (newest first):

Bergan, V. & Laiti, M. (2023) have explored the incentives and motivations for foraging in kindergartens of Norway based on Sámi and Norwegian cultures. They found that the ECE professionals 'viewpoints of nature', 'transfer and production of knowledge' and 'motives and meaning for foraging' were central for foraging activities in kindergartens. Foraging practices has relevance to all dimensions of sustainability, and especially cultural sustainability of local tradition to harvesting food.

Bergan, V., Nylund, M. B., Midtbø, I. L., & Paulsen, B. H. L. (2023) have investigated in depth the teacher's role in foraging and gardening activities in kindergarten through participatory action research. Three themes embody the

hallmarks of the teacher's role, and the findings discuss the important role of teachers in supporting the youngest children as active eco-citizens through foraging and gardening activities.

Ciren, B., Hu, A., Aadland, E. K., & Wergedahl, H. (2023) explored how a case kindergarten integrated sustainability thinking into its food practices and organizational structures. This publication suggests that kindergarten can serve as an arena for adopting sustainable food practices from each of the four components of sustainability with children acting as important change agents. This study can be illuminating and inspiring for other kindergartens and beyond to integrate sustainability in actions and contribute to positive changes for a shared sustainable future.

Furnes, A & Grindheim, L. T. (2023) strive for facilitating playful education for sustainable development in early childhood education. They forward a broad theoretical lens, with a unique conceptualisation of economic sustainability in ECE contexts. Their study reveals how dialog with early childhood teacher students and teachers gave input to a board game involving practical tasks, philosophical issues, funny and knowledge-based questions, that can embrace play in ecologic, economic, social and cultural perspectives, together with sustainable governance.

Almeida, S. C., Hu, A., & Inoue, M. (2022) provides an in-depth understanding of the Early Childhood policy frameworks in India, China and Japan, focusing on how this supports ESE implementation in Early Childhood settings. The study provides a comparative analysis of the key commonalities in the policy frameworks, the main enablers and vital challenges. It also offers a deep conversation on the convergences and divergences that bring together these three Asian countries in their goals of ESE implementation. Finally, the paper appeals to a global audience by offering a review of non-dominant approaches in these three countries, drawing upon their distinctive social, cultural and political contexts.

Bartnæs, P. & Myrstad, A (2022) highlight how to explore understanding of children's learning in the outdoor environment through Ingold's concept of correspondence. Snow and weather conditions are included as elements in a relational understanding, in which the environment is understood as open and dynamic – an interaction between past and present, geography, materiality, people and the 'more-than-human' world. The article is a contribution to SDG 4 by creating a nuanced understanding of children's learning and the educator's role within an outdoor environment in kindergarten practice.

Myrstad, A. & Kleemann, C. (2022) explore how multiple viewpoints can challenge our habitualised way of viewing and thinking about children's outdoor learning. Through a polyphonic dialogical approach to video, the authors placed these diverse viewpoints in a dialogue during the process of analysis. The analysis revealed the researcher's pre-defined human-centric view which changed their theoretical approach, from socio-cultural learning theories to new materialist theories. They show that children learn in all interactions and entanglements that they are part of in a socio-material world, which has relevance to SDG 4 – sustainable education.

Myrstad, A., Hackett, A. & Bartnæs, P. (2022) explore what place and snow means for early childhood education for sustainability. Their fieldwork was done in Arctic Norway, where kindergarten children spend time with snow for more than half of the year. By using Ingold's notion of correspondence and Manning´s notion of minor gestures, the article offers a counterpoint to thinking beyond the notion of humans as masterly in control of the environment. In a place where seasonal temporality matters, in extreme ways that change how children's bodies can move, they consider how children's entanglement with snow may be relevant to education for sustainability.

Bergan, V., Krempig, I.W., Utsi, T. Aa, & Bøe, K. W. (2021) have investigated how characteristics of the concept 'community of practice' are recognized in foraging and gardening projects in kindergartens and discuss how this contributes to social and cultural sustainability through engagement and agency for learning.

Birkeland, Å. & Grindheim, L. T. (2021) examined what insight into cultural sustainability could be surfaced in conflicting perspectives about military artefacts in ECE. Focus group interviews were conducted with Chinese and Norwegian ECE researchers and graduate students, during which photographs of a Chinese kindergarten where military artefacts and toys were highly represented. Conflicting perspectives surfaced how belonging are closely intertwined with protection and where to belong: locally, nationally or internationally. The findings indicate a need for more research on conditions for belonging and the normative complexities of artefacts in cultural sustainability.

Borgen, J. S. & Ødegaard, E. E. (2021) pinpoints how global trends in education are accompanied by both paradoxes and provocations. The argument is that we should reconsider the 'future' of planned and controlled education and instead become open to the perceptions of two groups that are at the forefront of educational futures – namely, children and young people and various experts

on children and childhood. Their experiences are interdependent and often paradoxical.

Crisostomo, A. T. & Reinertsen, A. B. (2021) theorize the role of the kindergarten teacher as an agency mobiliser for sustainability through keeping the concept of the child in play, ultimately envisioning the child as a knowledgeable and connectable collective. The overarching contribution of this article is political and pragmatic and concerns the constitution of subjectivity and transformative citizenships for sustainability in inter- and intra-generational perspectives.

Grindheim, L. T., Borgen, J. S. & Ødegaard, E. E. (2021) have aimed for more insight into how to come closer to achieving equitable conditions for generations living interconnected lives in their situated local, but globally entangled, nature and cultures. The presented study investigates how children's rights to protection, to be heard and to play and recreation are promoted, actualised and expended in the wake of the century of the child. Several paradoxes and ambivalences are uncovered that call for transformative research designs that are problem-oriented and transdisciplinary, as we as experts, together with citizens and policymakers, seek to make the right choices in the best interests of the child.

Grindheim, M. & Grindheim, L. T. (2021) perceive young children as aesthetically oriented to the world and their sense of belonging as a core experience for social and cultural sustainability. Their study surfaces dancing as being in a meditative state, having a sense of freedom and feeling body and mind as one, described as an overall "different", resilient way of being and belonging in a social context. The findings indicate that facilitating moments of sensible and bodily awareness can support a non-verbal understanding of oneself and others, as well as arguments for promoting aesthetic experiences while dancing as relevant to sustainable practices in ECEC.

Hu, A. & Ødemotland, S. (2021) explore how a purposely designed project can foster cultural sustainability through a case study of a neighbourhood project conducted in Chinese and Norwegian kindergartens. Findings indicate that children not only have gained knowledge of their neighbourhood and problem solving and social skills but also have developed sense of belonging and emotional link with their local culture through the active participation. More importantly, this study indicates that purposely designed projects/activities can promote early childhood education for sustainability and quality of early childhood education.

Kleemann, C. (2021) has shed light on how the use of bilingual resources in pedagogical translanguaging practices for the indigenous language North Sámi outdoors in a kindergarten context. Pedagogical translanguaging with young language learners in an emergent bilingual situation in practical activities outdoors could help strengthen North Sámi language and culture outside Sámi core areas. The article has relevance to both social and cultural sustainability.

Li, M., Birkeland, Å. & Duan, T. (2021) address the impact of international collaboration on education for sustainable development in the context of early childhood education in rural China. They identified three E's: experiencing cultural shocks and "outsider" status, engaging critical reflections upon ECEfS, and envisioning commitment to future action, with five key components of transformative learning. Implications for intercultural experiences as catalysts to trigger transformative learning and more are included in the final section of the article.

Oropilla, C. T. & Ødegaard, E. E. (2021) highlights intergenerational engagements and programs as dynamic, complex, relational, and dialogic systems of actors and institutions that requires shared responsibility and equal involvement of all actors, institutions, and society. This publication contributes to visualizing social sustainability allowing readers, practitioners, and researchers to ask better questions and think of new or different solutions to societal challenges and the potential to develop intergenerational strategies and designs for what is to come, guided by the past and the present.

Sadownik, A. R. & Gabi, J. (2021) discuss the unsustainable fragmentation of the holistic sustainability concept into: ecological, economic, socio-cultural sustainability (coordinated by good governance). In order to overcome this fragmentation, the authors suggest a more eager use of posthuman theoretical toolkits. The way in which these toolkits enable holistic capturing of sustainability is presented with use of an example of the concept sense of belonging. Theorized with humanistic theoretical toolkits it relates only to social sustainability, while its posthuman conceptualization joins the ecological and economic aspects.

Sadownik, A. R., Bakken, Y., Gabi, J., Višnjić-Jevtić, A., & Koutoulas, J. (2021) trace understandings of social sustainability in policy documents for ECEC in Australia, Croatia, Denmark, Norway, Poland, Serbia, Slovenia, Sweden and the UK (England, Scotland, Wales and Northern

Ireland). The analysis shows different ways in which the ECE polices indirectly work with social sustainability, as well as create critical distance from the sets of meanings established in each country. The authors argue for continual reflection and reflexivity on social sustainability to unfreeze the taken for granted and sustainable notion.

Sageidet, B. M. & Heggen, M. P. (2021) utilizing literature study explore the multiple perspective concept of global citizenship, and analyses and discuss global citizenship as an emerging and vital political, social, and cultural issue of our time, related to the Sustainable Development Goals, and as a contested concept in scholarly discourse. The study exemplifies how global citizenship may contribute to shape a sustainable future through the citizenship of children and youth.

Ødegaard, E. E. (2021) identify the components and features of a signature pedagogy for sustainability in early childhood education and care to respond to the call for tradition and innovation in early childhood education. Collaborative exploration is proposed as a pedagogical strategy, a relevant mode of action for sustainable practice. This is a conceptual article that recalls the origins of early childhood pedagogy and uses an exemplary empirical narrative from a recent study to illustrate collaborative exploration in an early childhood educational setting.

Sønsthagen, A. G. (2020) har gjennom en kvalitativ studie studert hvordan barnehager fungerer som en inkluderingsarena for foreldre med flyktningbakgrunn og hvordan personalet anerkjenner foreldrene som viktige bidragsytere i barnehagen. Resultatene viser at barnehagene så ut til å fungere mer som en integreringsarena for foreldrene enn en inkluderingsarena og at foreldrene i stor grad måtte samhandle med personalet i tråd med en norsk majoritetsdiskurs for å bli tilstrekkelig anerkjent. Studien befinner seg innenfor sosial og kulturell bærekraft og kan knyttes opp mot bærekraftsmålene 4, 10, og 16.

Birkeland, Å. & Li, M. (2019) discuss kindergartens' participation in international partnership programs as compelling vehicles for promoting early childhood education for sustainability (ECEfS). This article argues that ethical normative, dialogical, and anticipatory approaches are pivotal within international ECEfS partnership programs. Boldermo, S. and Ødegaard, E. E. (2019) investigate research articles that relate to education for sustainability, primarily in early childhood, in order to describe to what extent a holistic perspective on education for sustainability has been applied, and how the social dimension is conceptualized. The findings in this scoping review, disclosed that researchers within the field of education for sustainability acknowledged, to a large extent, environmental, economic, and social aspects, and thus applied a holistic perspective. Findings showed that few articles investigated diversity, multicultural perspectives, or migrant children's situations in the context of early childhood education for sustainability.

Grindheim, L. T., Bakken, Y., Hauge, K. H. & Heggen, M. P. (2019) explore how a broader understanding of sustainability can be relevant for early childhood education, based on the four dimensions suggested by United Nations Educational, Scientific, and Cultural organization: ecological, economic and social/cultural sustainability, and good governance. The relevance, possibility, and importance of facilitating children's opportunities to engage and to disturb established ways of thinking through all the four dimensions, are surfaces.

In the transdisciplinary paper *Children as Eco-citizens*?, Heggen, M. P., Sageidet, B. M., Goga, N., Grindheim, L.T., Bergan, V., Krempig, I. W., Utsi, T. A. & Lynngård, A. M (2019) call for an explicit aim for education for sustainability. Though the exploration of theories on child-sized citizenship, nature connection, science, children's curiosity, children's literature, gardening and harvesting of wild food, they suggest that the aim of education for sustainability in early childhood should be to consider children and adults in these settings as both being and becoming eco-citizens.

Li, M., Zhang, Y., Yuan, L. & Birkeland, Å. (2019) examines how early childhood curriculum documents in two culturally different contexts are associated with current concepts of sustainability and principles of early childhood education for sustainability (ECEfS) in China and Norway. The comparative document analysis argues that predominant cultural dimensions in each context, such as collectivist and individualistic factors, may shape the understandings of sustainability in each country's early years' curriculum documents. By broadening the focus on the social-cultural aspects of sustainability, this study extends the development of a culturally inclusive understanding of the concept of sustainability and contextualized/localized approaches to ECEfS across the globe.

Sageidet, B. M. (2019) explores the role of the sciences within education for sustainable development as it is reflected on the World Environmental Education Congres-

ses (WEEC) in 2015 and 2017. Observations, interviews, and a look at the presentations reveal plenty of information about science related realities, but little about how to get children and the youth to understand them. Only few presentations addressed children's and pupils' learning related to physics or biogeochemical basic understanding which is essential for to become informed participants in a sustainable society.

Sageidet, S. M, Christensen, M. & Davis, J. M. (2019) compare the understandings of environmental and sustainability-related issues of twenty 4-5-years-old children in kindergartens in Rogaland Norway, with the understandings of twenty similarly aged peers in kindergartens in Queensland, Australia. While Norwegian children seem to get more diverse outdoor opportunities, Australian children seem to have quite sophisticated ideas about sustainability-related interrelationships.

Ødegaard, E. E. & Marandon, A. (2019) describe and discuss what local weather landscapes mean to children and how weather implies exploring bodily sensations and capabilities. Through this study, the authors exemplify how experiencing weather is intertwined into pedagogical practices like habituating the body to cope with cold and wet weather, learning about danger in a wild natural landscape, and valuing species as a powerful practice. The descriptions exemplify "cultures of exploration" as a pedagogical approach.

Sageidet, B. M., Almeida, S. C., & Dunkley, R. (2018) investigate children's access to urban gardens in Stavanger, Norway, in Mumbai, India, and in Cardiff in the United Kingdom. Narratives based on literature studies and the author's own experiences and observations in the three cities, respectively, provide three perspectives with inspirations for promoting children's ecology, sustainability, and intergenerational learning in urban garden spaces.

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Innledning

BARNkunne – Senter for barnehageforskning gir med denne jubileumsboken et innblikk i barnehagerelevant forskning som knytter an til bærekraftige fremtider. Dersom vi som samfunn skal nå bærekraftsmålene, må vi rette søkelyset på samfunnsutfordringer. Artiklene i denne samlingen er et resultat av stort engasjement fra miljøet ved BARNkunne – Senter for barnehageforskning for å bidra til kunnskap om bærekraft til og sammen med barnehagesektoren. Artiklene dekker teoriutvikling, artikler som gir systematiske analyser, kasustudier, andre empiriske studier, og artikler med mål om å sette bærekraft på agendaen i barnehagesektoren.

Målet med denne artikkelsamlingen er å tilgjengeliggjøre for flere, en serie av fagfellevurderte publikasjoner på tema bærekraft i barnehagesektor. Forskerne og forfatterne ved BARNkunne – Senter forbarnehageforskning, har i mange år, også før oppstarten av forskningssenteret, vært opptatt av bærekrafttema. Noen har en bakgrunn som forskere i naturvitenskap, klima og fiskeri, mens andre har i flere år forsket innenfor kulturfag, utdanningsvitenskap og barnehagepedagogikk, spesielt. Ved Høgskolen på Vestlandet har miljøet en lang historie i å forske på dannings- og demokratiprosesser og hva slike perspektiver kan bety i barnehagesektor. Ved UiT- Norges arktiske universitetet , har miljøet i særlig grad en bakgrunn i å forske på mangfold, samisk kultur, sted og dyrking. Noen av forfatterne har også en bakgrunn fra engasjement i nasjonale og internasjonale organisasjoner som arbeider for bærekraftige fremtider. Dette gjelder spesielt sektornettverket *Verdensorganisasjonen for barns oppvekst og danning* (World Organisation for Early Childhood Education – OMEP) og forskernettverket *The Transnational Dialogues: Research in Early Childhood Education for Sustainability* (TND Community). Noen av forskerne deltar også i det norske nettverket *Nasjonalt forskernettverk for bærekraft og utdanning* (NABU). I disse nettverkene har flere forskere ved BARNkunne hatt ledende verv, både nasjonalt og internasjonalt.

OMEP har nær 70 medlemsland og er representert i alle verdensdeler med representasjon i FN og UNESCO. De arbeider spesielt med saker for å fremme barns rett til lek og læring og rett til beskyttelse fra krig og nød. OMEP var tidlig ute med å sette utdanning for bærekraft på agendaen og har tatt en rekke lokale, nasjonale og internasjonale initiativer for å skape oppmerksomhet om betydningen av tidlig utdanning, danning og omsorg, blant annet med å fremme argumenter for en UN Decade of Early Childhood Education and Care (OMEP World, 2022).
Her har BARNkunne forskere bidratt (Åsta Birkeland, Aihua Hu og Elin Eriksen Ødegaard har hatt styreverv i OMEP Norge og Elin Eriksen Ødegaard var fra 2020-2023 OMEP World Treasurer med internasjonalt verv i Excecutive Committee of World Organisation OMEP).

TND community engasjerer mer enn 60 barnehageforskere som er i den internasjonale front på å publisere forskning om bærekraft i barnehagen, der BARNkunnes forskere er noen av disse (for eksempel Barbara Sageidet, Marianne Presthus Heggen, Elin Eriksen Ødegaard). NABU-nettverket, er forankret ved Høgskolen Innlandet, men også her har BARNkunne forskere hatt styreverv (Marianne Presthus Heggen) og verv i valgkomite (Veronica Bergan).

Vi ser en vending mot en større interesse for det globale og lokale, for sted og kultur og for materialitet og for mennesket som natur, som må studeres i relasjon til natur. Artiklene viser at forfatterne er mer eller mindre påvirket av debatten om tidsepoken som vi lever i. Begrepet Antropocen løftes også frem; om hvordan klimaendringene reiser verdispørsmål for hva som er relevant for barnehageforskningen. Dette er spørsmål som noen av forfatterne reiser i artiklene. Flere av forfatterne underviser om bærekraft i Barnehagelærerutdanningene (BLU), på Master i barnehagekunnskap og på ulike etter- og videreutdanninger og reiser spørsmål og skaper kunnskap og forståelse med studenter.

Det er flere grunner til at vi samler disse artiklene i ett dokument. BARNkunnes visjon for forskningen innebærer å rette et forskningsfokus og formidle kunnskap om bærekraft. Dette er det viktigste vi kan gjøre for barns fremtid og for planeten jorden.

Vi lever i dag i en usikker tid. Det er flere kriser i verden og et mangfold av globale vanskeligheter som rammer barna sterkt. Vi lever også med en rekke paradokser som det kan være verd å sette ord på. Et eksempel på et slikt paradoks er at barn har mange rettigheter, flere enn noen gang i historien, likevel er barn fremdeles svært sårbare, ja minst like sårbare som barn gjennom historien også tidligere har vært. Sammen med funksjonshemmete, mennesker på flukt og i krise, syke og eldre mennesker, er barn svært sårbare. Barns rett til lek og rett til beskyttelse, rekker ikke så langt når krisen, krigen eller ekstremværet rammer dem. Et annet eksempel på et paradoks

er at det er globalt stor oppmerksomhet på barns utdanning og jenters rett til utdanning er satt på dagsordenen. Likevel er det mange jenter som ikke kan benytte seg av sine rettigheter, enten fordi de lever under vilkår der utdanning ikke er tilgjengelig der de lever og/eller de er for fattige til å komme seg dit, eller at de lever i regimer som aktivt hindrer jenter sin rett til utdanning. Nok et paradoks er at det er stor felles politisk enighet og oppmerksomhet på at vi må bedre vilkårene for barn og gjøre slutt på fattigdom. Likevel blir rikdom et ideal for mange og det å endre politikk for å avskaffe fattigdom synes å være et stort og umulig problem å løse. I samfunnsoppdraget til barnehagene ligger det idealer om sosial utjevning og om å ruste fremtidige generasjoner til samarbeid og bærekraftige praksiser. Men vi vet at det som kjennetegner de store problemene (wicked problems) som for eksempel fattigdom, er at en sektor ikke kan løse dem alene (Earle and Leyva-de la Hiz 2021).

Innenfor utdanningssektoren har barnehagesektoren i Norden, sammen med forskere flere steder i verden, vært i front når det gjelder å plukke opp begrepet bærekraft og tilpasse det til en lang barnehagetradisjon med barns rettigheter, utelek, natur- og kulturekskursjoner, inkludering av alle barn og barnevern. Forskere som har vært knyttet til barnehagelærerutdanningene, var tidlig ute med å løfte frem og operasjonalisere hva begrepet bærekraft skulle bety for utdanning. I den norske rammeplan for barnehagens innhold og oppgaver ser vi et skifte med ny rammeplan for barnehagens virksomhet i 2017 (Kunnskapsdepartementet, 2017). Nå skulle bærekraftig utvikling omfatte all virksomhet i barnehagen. Her ble bærekraftbegrepet utvidet og behandlet som en grunnverdi for den norske barnehagen. I tidligere versjoner av rammeplanen, var bærekraft et begrep som hørte til i naturfagdidaktikken og som refererte til faglig arbeid med økologi og med vern av natur.

Hva betyr bærekraft i barnehagesektoren?

Oppdraget å bidra til bærekraftige fremtider er gitt barnehagene gjennom *Rammeplan for barnehagens innhold og oppgaver* (Kunnskapsdepartementet, 2017). Her ser vi en operasjonalisering av begrepet bærekraft som ligger tett opp FN's agenda. La se på verdigrunnlaget i barnehagenes rammeplan:

- Barna skal lære å ta vare på seg selv, hverandre og naturen. Bærekraftig utvikling omfatter natur, økonomi og sosiale forhold og er en forutsetning for å ta vare på livet på jorden slik vi kjenner det. Barnehagen har derfor en viktig oppgave i å fremme verdier, holdninger og praksis for mer bærekraftige samfunn.
- Bærekraftig utvikling handler om at mennesker som lever i dag, får dekket sine grunnleggende behov uten å ødelegge fremtidige generasjoners mulighet til å dekke sine. Det handler om å tenke og handle lokalt, nasjonalt og globalt. Barnehagen skal bidra til at barna kan forstå at dagens handlinger har konsekvenser for fremtiden.
- Barnehagen skal legge grunnlag for barnas evne til å tenke kritisk, handle etisk og vise solidaritet. Barna skal gjøre erfaringer med å gi omsorg og ta vare på omgivelsene og naturen. For samiske barn betyr dette å leve i samklang med, nyttiggjøre seg av og høste av naturen.
- Barna skal få naturopplevelser og bli kjent med naturens mangfold, og barnehagen skal bidra til at barna opplever tilhørighet til naturen.

Det er store målsetninger i dette mandatet for barnehagelærere fra forskriften til barnehageloven. I Rammeplanen fra 2017 fikk bærekraftsbegrepet en større og tydeligere plass enn tidligere. Bærekraft er blitt et av hovedbegrepene for barnehagesektoren, da det er plassert i rammeplanens verdigrunnlag. Men en rammeplan vil alltid være er fremforhandlet tekst som fastsetter visse hovedtrekk, det vil alltid være noe som mangler, og etter hvert som tiden går oppstår nye hendelser, som gjør at en rammeplan må forhandles frem på nytt. En rammeplan er også en forskrift som forutsetter at man tilpasser den til lokale og aktuelle forhold. Når vi her presenterer vår forskning om og for bærekraft bidrar vi til en pågående dialog om hva bærekraft kan bety i barnehagesektor. Det fungerer dermed som operasjonaliseringer, konseptualiseringer og gir eksempler på praksis som kan bidra til å oppnå disse målene. Noen av artiklene er også en operasjonalisering av bærekraftsmål 17 om samarbeid for å nå målene. Her viser vi til forskning der vi samskaper med ulike aktører i praksis; barn, ansatte, ledere og andre samarbeidspartnere.

La oss zoome litt ut; Mange vet at det var en norsk kvinne som ledet arbeidet med rapporten *Vår felles framtid* (Bruntland,1987). Denne rapporten gav viktige bidrag til den internasjonale agendaen og vi kan se tydelige spor etter den i den norske rammeplan for barnehagens innhold og oppgaver. Sammen med kolleger i Verdenskommisjonen for kunnskap og utvikling, definerte Gro Harlem Brundtland, en definisjon for bærekraftig utvikling som ennå ofte blir brukt. På side 42 i denne rapporten kan vi lese; *Bærekraftig utvikling som tilfredsstiller dagens behov uten å ødelegge fremtidige generasjoners muligheter til å tilfredsstille sine behov*. Denne definisjonen er lik den

som i dag finnes i den norske rammeplanen. Vår felles framtid, er en tekst som har stått seg over tid. Det er verd å legge merke til at rapporten har en bred og dyp tilnærming til begrepet, selv om flere i dag vil si at den ikke går langt nok i å begrense menneskenes bruk av naturressurser.

På linje med FNs Barnerettigheter, som også er forhandlet frem av en gruppe kvinner i perioden etter 2. verdenskrig til 1989, da Barnekonvensjonen ble vedtatt av FNs generalforsamling, er også denne bærekraftsdefinisjonen sentral i FN's agenda 2030. Her er det formulert 17 bærekraftsmål (Sustainable development goals, SDG). Disse målene kan sies å være en internasjonal arbeidsplan for å utrydde fattigdom, bekjempe ulikheter og stoppe ødeleggelser av miljøet innen 2030. Målene er viktige og BARNkunne bidrar, sammen med mange andre aktører, for å virkeliggjøre bærekraftsmålene gjennom barnehageforskning.

BARNkunne-forskere drøfter begrepet bærekraft i en rekke publikasjoner. For eksempel bidrar flere av forfatterne med begrepsliggjøring som knytter sosial og økologisk bærekraft sammen. De peker på barnehagelæreren som rollemodell, en som tilrettelegger, en som går sammen med barn (medvandrer) for å danne og kultivere små barns omsorg til naturen og hverandre (Bergan et al., 2021; Bergan et al., 2023). Flere av forfatterne anlegger et økokritisk perspektiv som kritiserer en definisjon på bærekraft som kun setter mennesker i sentrum (Bergan et al., 2021; Bergan et al., 2023; Heggen et al., 2019). Andre har sitt fokus rettet mot sosial bærekraft forstått som tillit, tilhørighet og tilgang til goder som utdanning, gode relasjoner og gode nærmiljø (Boldermo & Ødegaard, 2019; Hu & Ødemotland, 2021). BARNkunne har også over år fremhevet begrepet samarbeidende utforskning for å begrepsliggjøre og teoretisere bærekraftige praksiser i barnehagen. Et eksempel på dette er begrepet samarbeidende utforskning (Collaborative exploration) (Fleer et al., 2021; Hedegaard & Eriksen Ødegaard, 2020; Ødegaard & Borgen, 2021). Et annet eksempel er en studie som argumenterer for og viser hvordan dimensjonene, god ledelse, økonomisk, økologisk og sosial bærekraft henger sammen og er overlappende (Grindheim et al. 2019). Det har også vært interessant å sammenligne hvordan rammeplaner fra ulike land behandler begrepet bærekraft (Li & Birkeland 2019, Almeide, Hu & Inoue, 2022).

Temaet bærekraft, som vi forsker på, er verdibasert, slik som de fleste spørsmål i samfunnsforskningen er (Andersson, 2018). I våre artikler kan det handle om implisitt og eksplisitt normativitet. Det å ikke legge verdier til grunn for forskning, utgjør en risiko for å bli blind for hvilke verdier som ligger i premisser for forskning og i interessehavere. Det å være tydelig på hvilke verdier som strategisk ligger til grunn for en forskningsprofil, skaper transparens og kan tydeliggjøre en etisk mentalitet. Noen vil mene at Agenda 2030 har mål som er vage og at de ikke går langt nok. Det kan vi gjerne være enige i. Er det for eksempel mulig å nå målene uten å senke levestandarden i de landene som forbruker mest? Flere av våre forskere har også vært uenige i hvordan bærekraftsmål nr 4, om kvalitet i utdanning, er formulert i Agendaen. Formuleringene her kan være utfordrende for barnehageforskere, fordi formuleringene legger opp til skoleforberedelse alene. Vi er ikke uenige i at man må tenke på kvalitet i undervisning på skole som svært viktig, men siden vi tjener den norske barnehagesektor, er vi selvsagt opptatt av at barns liv og utvikling før skolealder er i mange henseender enda viktigere. Gode oppvekstsvilkår i hele barndommen blir godt belyst i barnerettighetene og ikke minst i Barnekonvensjonens kommentar nr. 7, fra 2005, som anerkjenner de yngste barnas mange uttrykk, noe som er viktig å anerkjenne for å kunne verdsette lek og kunne forstå barns deltakelse og medvirkning i sitt eget liv nå og i fremtiden. Et barneliv må verdsettes for det det til enhver tid faktisk er, i tillegg til også å skulle være fremtidsrettet på barnets vegne.

Ikke så mange vet så mye om ideene som ligger til grunn for den bærekraftstenkningen, retorikken og politikkutformingen vi ser i dag. La oss derfor ta et blikk bakover i tid.

Går vi tilbake i historien er det mange mulige startpunkt. Urfolk har levd i tett samsvar med natur gjennom bærekraftig høsting og naturforvaltning. Begrepet bærekraft ble tatt i bruk første gang i 1713 (Grober, 2007), og det er ved å gå tilbake til begrepets historiske røtter at man finner er mer levende og skimrende begrep enn den mer teknokratiske 'smaken' begrepet har i dag. Første gang begrepet ble tatt i bruk, handlet det om skogsdrift. Hans Carl von Carlowitz mente at man skulle tenke langt, når man hentet ut tømmer fra skogen. I hans tid hadde gruvedrift krevd et overforbruk av tømmer, slik at man så skogsdød. Carlowitz mente at man måtte planlegge bedre, man skulle bare ta ut så mye tømmer at trærne i skogen kunne fortsette å vokse og skogen fortsette å eksistere.

Noen år før Brundtland rapporten, i 1974, ble begrepet bærekraft brukt for å lage en samlebetegnelse over retningslinjer for sosio-etikk (Grober, 2007).

Her var det snakk om ansvarlige samfunn med å beskrive det som rettferdige og bærekraftige samfunn. Fremtiden vil kreve at ressurser ses i sammenheng med at de skal være nyttig for flere og at vi må redusere forventninger om global vekst. Det krever en overgang til et globalt velferdssamfunn basert på bærekraft på vegne av fremtidige generasjoner. Går vi et sjumilssteg enda lengre tilbake, finner vi det engelske begrepet 'sustained yield', som direkte oversatt betyr bærekraftig utbytte. Dette begrepet ble brukt fra midten av den 19. århundre og var oversatt fra det tyske ordet 'nachhaltig' ofte satt sammen med nutze, altså 'langsiktig nytte' og ble brukt om treplantning. Dette er et tankegods som det er mulig å finne i ulike deler av samfunn- og kulturhistorie.

I Norge og langt utover Norge, har også økofilosofen og naturverneren Arne Næss stått sterkt. Næss lanserte skillet mellom grunn og dyp økologi og lanserte en dyp-økologisk plattform. Denne plattformen gikk lengre i retning av ivaretakelse av planeten enn det Brundtland-rapporten gjorde. Her skriver han om at alt menneskelig og ikke menneskelig liv på jorden har en verdi i seg selv og at disse livene har en egenverdi, uavhengig av nytteverdi for menneskelige formål (Næss, 1988). Arne Næss sin filosofi ble omfavnet av mange norske og internasjonale

Hva har dette så med barnehageforskning å gjøre? Disse tanke- og mentalitetsstrømningene finner gjenklang gjennom barnehagehistorien. Barnehagedidaktikken har fra starten, vært forankret i oppdragelse og utdanning til å leve i og med natur, gjennom dyrking og sanking, matlaging og friluftsliv. Dette går tydelig frem i barnehagehistoriens klassiske verk, Friedrich Frøbels, *The Education of Man* (Froebel, 1898 [2005]), hvor han skriver om hvordan mennesket er forbundet med naturen og hvordan all utdanning må la barnet oppdage slike sammenhenger. Miljøvernstema kom tidlig inn i barnehagesektoren, samtidig som det ble satt på naturvernernes og samfunnets dagsorden. Men begrepet bærekraft kom til barnehagen noe senere.

Visste du hvordan arbeidet med bærekraft startet i barnehagesektoren? Det første internasjonale møte om bærekraftig utvikling ble avholdt i Gøteborg i 2007 (Davis et al., 2008). Det var et samarbeid mellom UNESCO i Sverige og organisasjonen OMEP. Dette møtet resulterte i anbefalinger om at barnehagealderen er et naturlig startpunkt for å fremme tilgang til utdanning for alle mennesker innenfor rammen av livslang læring. En utdanning for bærekraft må bygge på dialog, deltakelse og medvirkning, samt en verdsetting av deltakernes kunnskap og erfaringer (Pramling Samuelsson et al., 2021).

Visste du at det var et miljø som, i dag arbeider som forskere i BARNkunne, som også var aktive i organisasjonen OMEP, som lanserte begrepet bærekraft for barnehagesektoren i Norge? I Norge startet arbeidet med bærekraft i og for barnehagen i 2009, da Norsk OMEP, i samarbeid med UNESCO, Utdanningsforbundet, Høgskolen i Bergen og organisasjonen og vitensenteret VilVite, arrangerte den aller første nasjonale konferansen for bærekraft i barnehagen. Det ble holdt tre slike nasjonale konferanser om bærekraft for barnehagesektoren i Bergen, i 2010 og 2011. De to første ble initiert av og ledet av BARNkunnes senterleder, som da var leder i Norsk OMEP og hadde som oppdrag å lansere bærekraft for barnehagesektoren i Norge. Norsk OMEP, i samarbeid med barnehager i Bergen og Tromsø, deltok også aktivt med å skape datamateriale til den store internasjonale studien om samtaler med barn om bærekraft. Fra Norge ble denne studien ledet av Elin Eriksen Ødegaard, Høgskolen i Bergen og Erik Duncan, Bergen kommune. Til sammen 9750 barn fra 35 land deltok i denne store studien (Engdahl, 2015). Utgangspunktet for barnesamtalene var en tegning av en jordklode omkranset av barn som vasket jordkloden. Dette bildet skapte interessante dialoger med barna, men også blant barnehagelærere og oss som ledet prosjektet fra OMEP Norges side. Vi fikk opp en kritikk om at det ikke var barnas ansvar å skulle holde jorden ren, utfra en tolkning av at dette var bildets budskap. Studien og kritikken av bildet som var lagt til grunn for barnesamtalene, skapte en verdidebatt om barnehagen som en arena for danning (Ødegaard, 2012; Ødegaard & White, 2016), og barnehagelæreren som en ansvarlig verdibygger (Birkeland & Grindheim, 2021; Grindheim & Aaserud, 2020). Senere ble diskusjonene om *barn som økoborgere* drøftet (Heggen et al., 2019). Her ble det argumentert for at det ikke lenger, i barnehageforskningen, er hensiktsmessig å skulle lage et skarpt skille mellom barns perspektiver og voksnes (barnehagelæreres) fordi vi i vår forskningsdata ser at voksne bygger på barns initiativer, så vel som at barn svarer på voksnes initiativer. Denne ontologiske vendingen bort fra barneperspektiv i motsetning til voksnes perspektiv, men heller se disse i dialog med hverandre, eller som forhandler og vekslinger, kan vi finne igjen i flere av studiene som også inngår i dialoger med øvrige miljøer som arbeider med bærekraft.

Da BARNkunne holdt sin åpningskonferanse i 2018, rettet BARNkunnes leder søkelys på betydningen av å forske på barns vegne, på fremtidige generasjoners vegne. Hun la også vekt på at BARNkunne hadde en tydelig profil med samarbeidende forskningsdesign, noe som kan styrke arbeidet med bærekraftsmål nr. 17.

Vi vet det må samarbeid til, for å oppnå bærekraftig utvikling. En tydelig signatur av forskningen fra BARNkunne er at forskningsdesignet vil være deltakerorientert og ofte samskapt mellom ulike aktører og interessehavere i barnehagesektor. Gjennom design skaper vi ny kunnskap som er validert gjennom slike designprosesser. Denne fremgangsmåten referer direkte til bærekraftsmål nr. 17. Det har som mål å styrke gjennomføringsmidlene og fornye globale partnerskap for bærekraftig utvikling. Vi bidrar med nye og sterke partnerskap og vi samarbeider med myndigheter, næringsliv og sivilsamfunn, men fremst i våre design står samarbeid med barn, personalet og foreldre. Vi trener vår evne og kapasitet til samarbeid og kunnskaping. Dette og mer til, kan du lese om her. Håper du liker det!

Våre forskningsbidrag om bærekraft

For å kunne jobbe med mandatet for bærekraftige fremtider, må vi teoretisere, finne status for feltet, drøfte og konkretisere ved å vise eksempler. Artiklene vi presenterer her kan alle sies å være et resultat av forsøket på å trenge lenger ned i å forstå, både den internasjonale FN's agenda 2030, internasjonal forskning om og for bærekraft i barnehagefeltet og hvordan den norske barnehagen, så langt, forholder seg til verdigrunnlaget om bærekraft i rammeplanen. Våre bidrag inkluderer teoretiske bidrag, oversiktsstudier (systematiske reviews), komparative bidrag og etnografisk inspirerte bidrag, m.m. Flere av artiklene vi presenterer kan sies å være praksisutviklende, noe som innebærer teoretiseringer på bakgrunn av observasjons-studier og samskaping med barn, barnehageansatte og andre barneeksperter.

Felles for det utvalget av artikler som finnes her, er at de er publisert i vitenskapelige og åpne publiseringskanaler som tillater at forfatterne kan publisere sin egen forskning i en ny publiseringskanal (Creative Commons CC BY 4.0). Noen av artiklene adresser tema bærekraft tydelig med begrepet bærekraft som et av nøkkelordene i publikasjonen, mens andre artikler vi har valgt ut, omhandler et eller flere av FN's bærekraftsmål mer indirekte. Dette innebærer at det er et utvalg av studier som presenteres her. Miljøet har i tillegg til å publisere vitenskapelige artikler i åpne publiseringskanaler, også publisert bøker på forlag som ikke automatisk tillater en gjenpublisering, kronikker, populærvitenskapelige artikler i fagblader for barnehagelærere og filmer. For å finne en fullstendig oversikt over miljøets publiseringer, gå inn på nettsiden www.hvl.no/BARNkunne og i Forskningsrådets prosjektbank (prosjektbanken.forskningsradet.no/project/FORISS/275575).

Her kan du lese kort om de utvalgte artiklene

Bergan, V. & Laiti, M. (2023) have explored the incentives and motivations for foraging in kindergartens of Norway based on Sámi and Norwegian cultures. They found that the ECE professionals 'viewpoints of nature', 'transfer and production of knowledge' and 'motives and meaning for foraging' were central for foraging activities in kindergartens. Foraging practices has relevance to all dimensions of sustainability, and especially cultural sustainability of local tradition to harvesting food.

Bergan, V., Nylund, M. B., Midtbø, I. L., & Paulsen, B. H. L. (2023) have investigated in depth the teacher's role in foraging and gardening activities in kindergarten through participatory action research. Three themes embody the hallmarks of the teacher's role, and the findings discuss the important role of teachers in supporting the youngest children as active eco-citizens through foraging and gardening activities.

Ciren, B., Hu, A., Aadland, E. K., & Wergedahl, H. (2023) explored how a case kindergarten integrated sustainability thinking into its food practices and organizational structures. This publication suggests that kindergarten can serve as an arena for adopting sustainable food practices from each of the four components of sustainability with children acting as important change agents. This study can be illuminating and inspiring for other kindergartens and beyond to integrate sustainability in actions and contribute to positive changes for a shared sustainable future.

Furnes, A & Grindheim, L. T. (2023) strive for facilitating playful education for sustainable development in early childhood education. They forward a broad theoretical lens, with a unique conceptualisation of economic sustainability in ECE contexts. Their study reveals how dialog with early childhood teacher students and teachers gave input to a board game involving practical tasks, philosophical issues, funny and knowledge-based questions, that can embrace play in ecologic, economic, social and cultural perspectives, together with sustainable governance.

Almeida, S. C., Hu, A., & Inoue, M. (2022) provides an in-depth understanding of the Early Childhood policy frameworks in India, China and Japan, focusing on how this supports ESE implementation in Early Childhood settings. The study provides a comparative analysis of the key commonalities in the policy frameworks, the main enablers and vital challenges. It also offers a deep conversation on the convergences and divergences that

bring together these three Asian countries in their goals of ESE implementation. Finally, the paper appeals to a global audience by offering a review of non-dominant approaches in these three countries, drawing upon their distinctive social, cultural and political contexts.

Bartnæs, P. & Myrstad, A (2022) highlight how to explore understanding of children's learning in the outdoor environment through Ingold's concept of correspondence. Snow and weather conditions are included as elements in a relational understanding, in which the environment is understood as open and dynamic – an interaction between past and present, geography, materiality, people and the 'more-than-human' world. The article is a contribution to SDG 4 by creating a nuanced understanding of children's learning and the educator's role within an outdoor environment in kindergarten practice.

Myrstad, A. & Kleemann, C. (2022) explore how multiple viewpoints can challenge our habitualised way of viewing and thinking about children's outdoor learning. Through a polyphonic dialogical approach to video, the authors placed these diverse viewpoints in a dialogue during the process of analysis. The analysis revealed the researcher's pre-defined human-centric view which changed their theoretical approach, from socio-cultural learning theories to new materialist theories. They show that children learn in all interactions and entanglements that they are part of in a socio-material world, which has relevance to SDG 4 – sustainable education.

Myrstad, A., Hackett, A. & Bartnæs, P. (2022) explore what place and snow means for early childhood education for sustainability. Their fieldwork was done in Arctic Norway, where kindergarten children spend time with snow for more than half of the year. By using Ingold's notion of correspondence and Manning´s notion of minor gestures, the article offers a counterpoint to thinking beyond the notion of humans as masterly in control of the environment. In a place where seasonal temporality matters, in extreme ways that change how children's bodies can move, they consider how children's entanglement with snow may be relevant to education for sustainability.

Bergan, V., Krempig, I.W., Utsi, T. Aa, & Bøe, K. W. (2021) have investigated how characteristics of the concept 'community of practice' are recognized in foraging and gardening projects in kindergartens and discuss how this contributes to social and cultural sustainability through engagement and agency for learning.

Birkeland, Å. & Grindheim, L. T. (2021) examined what insight into cultural sustainability could be surfaced in conflicting perspectives about military artefacts in ECE. Focus group interviews were conducted with Chinese and Norwegian ECE researchers and graduate students, during which photographs of a Chinese kindergarten where military artefacts and toys were highly represented. Conflicting perspectives surfaced how belonging are closely intertwined with protection and where to belong: locally, nationally or internationally. The findings indicate a need for more research on conditions for belonging and the normative complexities of artefacts in cultural sustainability.

Borgen, J. S. & Ødegaard, E. E. (2021) pinpoints how global trends in education are accompanied by both paradoxes and provocations. The argument is that we should reconsider the 'future' of planned and controlled education and instead become open to the perceptions of two groups that are at the forefront of educational futures – namely, children and young people and various experts on children and childhood. Their experiences are interdependent and often paradoxical.

Crisostomo, A. T. & Reinertsen, A. B. (2021) theorize the role of the kindergarten teacher as an agency mobiliser for sustainability through keeping the concept of the child in play, ultimately envisioning the child as a knowledgeable and connectable collective. The overarching contribution of this article is political and pragmatic and concerns the constitution of subjectivity and transformative citizenships for sustainability in inter- and intra-generational perspectives.

Grindheim, L. T., Borgen, J. S. & Ødegaard, E. E. (2021) have aimed for more insight into how to come closer to achieving equitable conditions for generations living interconnected lives in their situated local, but globally entangled, nature and cultures. The presented study investigates how children's rights to protection, to be heard and to play and recreation are promoted, actualised and expended in the wake of the century of the child. Several paradoxes and ambivalences are uncovered that call for transformative research designs that are problem-oriented and transdisciplinary, as we as experts, together with citizens and policymakers, seek to make the right choices in the best interests of the child.

Grindheim, M. & Grindheim, L. T. (2021) perceive young children as aesthetically oriented to the world and their sense of belonging as a core experience for social and cultural sustainability. Their study surfaces dancing as

being in a meditative state, having a sense of freedom and feeling body and mind as one, described as an overall "different", resilient way of being and belonging in a social context. The findings indicate that facilitating moments of sensible and bodily awareness can support a non-verbal understanding of oneself and others, as well as arguments for promoting aesthetic experiences while dancing as relevant to sustainable practices in ECEC.

Hu, A. & Ødemotland, S. (2021) explore how a purposely designed project can foster cultural sustainability through a case study of a neighbourhood project conducted in Chinese and Norwegian kindergartens. Findings indicate that children not only have gained knowledge of their neighbourhood and problem solving and social skills but also have developed sense of belonging and emotional link with their local culture through the active participation. More importantly, this study indicates that purposely designed projects/activities can promote early childhood education for sustainability and quality of early childhood education.

Kleemann, C. (2021) has shed light on how the use of bilingual resources in pedagogical translanguaging practices for the indigenous language North Sámi outdoors in a kindergarten context. Pedagogical translanguaging with young language learners in an emergent bilingual situation in practical activities outdoors could help strengthen North Sámi language and culture outside Sámi core areas. The article has relevance to both social and cultural sustainability.

Li, M., Birkeland, Å. & Duan, T. (2021) address the impact of international collaboration on education for sustainable development in the context of early childhood education in rural China. They identified three E's: experiencing cultural shocks and "outsider" status, engaging critical reflections upon ECEfS, and envisioning commitment to future action, with five key components of transformative learning. Implications for intercultural experiences as catalysts to trigger transformative learning and more are included in the final section of the article.

Oropilla, C. T. & Ødegaard, E. E. (2021) highlights intergenerational engagements and programs as dynamic, complex, relational, and dialogic systems of actors and institutions that requires shared responsibility and equal involvement of all actors, institutions, and society. This publication contributes to visualizing social sustainability allowing readers, practitioners, and researchers to ask better questions and think of new or different solutions to societal challenges and the potential to develop intergenerational strategies and designs for what is to come, guided by the past and the present.

Sadownik, A. R. & Gabi, J. (2021) discuss the unsustainable fragmentation of the holistic sustainability concept into: ecological, economic, socio-cultural sustainability (coordinated by good governance). In order to overcome this fragmentation, the authors suggest a more eager use of posthuman theoretical toolkits. The way in which these toolkits enable holistic capturing of sustainability is presented with use of an example of the concept sense of belonging. Theorized with humanistic theoretical toolkits it relates only to social sustainability, while its posthuman conceptualization joins the ecological and economic aspects.

Sadownik, A. R., Bakken, Y., Gabi, J., Višnjić-Jevtić, A., & Koutoulas, J. (2021) trace understandings of social sustainability in policy documents for ECEC in Australia, Croatia, Denmark, Norway, Poland, Serbia, Slovenia, Sweden and the UK (England, Scotland, Wales and Northern Ireland). The analysis shows different ways in which the ECE polices indirectly work with social sustainability, as well as create critical distance from the sets of meanings established in each country. The authors argue for continual reflection and reflexivity on social sustainability to unfreeze the taken for granted and sustainable notion.

Sageidet, B. M. & Heggen, M. P. (2021) utilizing literature study explore the multiple perspective concept of global citizenship, and analyses and discuss global citizenship as an emerging and vital political, social, and cultural issue of our time, related to the Sustainable Development Goals, and as a contested concept in scholarly discourse. The study exemplifies how global citizenship may contribute to shape a sustainable future through the citizenship of children and youth.

Ødegaard, E. E. (2021) identify the components and features of a signature pedagogy for sustainability in early childhood education and care to respond to the call for tradition and innovation in early childhood education. Collaborative exploration is proposed as a pedagogical strategy, a relevant mode of action for sustainable practice. This is a conceptual article that recalls the origins of early childhood pedagogy and uses an exemplary empirical narrative from a recent study to illustrate collaborative exploration in an early childhood educational setting.

Sønsthagen, A. G. (2020) har gjennom en kvalitativ studie studert hvordan barnehager fungerer som en inkluderings-

arena for foreldre med flyktningbakgrunn og hvordan personalet anerkjenner foreldrene som viktige bidragsytere i barnehagen. Resultatene viser at barnehagene så ut til å fungere mer som en integreringsarena for foreldrene enn en inkluderingsarena og at foreldrene i stor grad måtte samhandle med personalet i tråd med en norsk majoritetsdiskurs for å bli tilstrekkelig anerkjent. Studien befinner seg innenfor sosial og kulturell bærekraft og kan knyttes opp mot bærekraftsmålene 4, 10, og 16.

Birkeland, Å. & Li, M. (2019) discuss kindergartens' participation in international partnership programs as compelling vehicles for promoting early childhood education for sustainability (ECEfS). This article argues that ethical normative, dialogical, and anticipatory approaches are pivotal within international ECEfS partnership programs.

Boldermo, S. and Ødegaard, E. E. (2019) investigate research articles that relate to education for sustainability, primarily in early childhood, in order to describe to what extent a holistic perspective on education for sustainability has been applied, and how the social dimension is conceptualized. The findings in this scoping review, disclosed that researchers within the field of education for sustainability acknowledged, to a large extent, environmental, economic, and social aspects, and thus applied a holistic perspective. Findings showed that few articles investigated diversity, multicultural perspectives, or migrant children's situations in the context of early childhood education for sustainability.

Grindheim, L. T., Bakken, Y., Hauge, K. H. & Heggen, M. P. (2019) explore how a broader understanding of sustainability can be relevant for early childhood education, based on the four dimensions suggested by United Nations Educational, Scientific, and Cultural organization: ecological, economic and social/cultural sustainability, and good governance. The relevance, possibility, and importance of facilitating children's opportunities to engage and to disturb established ways of thinking through all the four dimensions, are surfaces.

In the transdisciplinary paper *Children as Eco-citizens?*, Heggen, M. P., Sageidet, B. M., Goga, N., Grindheim, L.T., Bergan, V., Krempig, I. W., Utsi, T. A. & Lynngård, A. M (2019) call for an explicit aim for education for sustainability. Though the exploration of theories on child-sized citizenship, nature connection, science, children's curiosity, children's literature, gardening and harvesting of wild food, they suggest that the aim of education for sustainability in early childhood should be to consider children and adults in these settings as both being and becoming eco-citizens.

Li, M., Zhang, Y., Yuan, L. & Birkeland, Å. (2019) examines how early childhood curriculum documents in two culturally different contexts are associated with current concepts of sustainability and principles of early childhood education for sustainability (ECEfS) in China and Norway. The comparative document analysis argues that predominant cultural dimensions in each context, such as collectivist and individualistic factors, may shape the understandings of sustainability in each country's early years' curriculum documents. By broadening the focus on the social-cultural aspects of sustainability, this study extends the development of a culturally inclusive understanding of the concept of sustainability and contextualized/localized approaches to ECEfS across the globe.

Sageidet, B. M. (2019) explores the role of the sciences within education for sustainable development as it is reflected on the World Environmental Education Congresses (WEEC) in 2015 and 2017. Observations, interviews, and a look at the presentations reveal plenty of information about science related realities, but little about how to get children and the youth to understand them. Only few presentations addressed children's and pupils' learning related to physics or biogeochemical basic understanding which is essential for to become informed participants in a sustainable society.

Sageidet, S. M, Christensen, M. & Davis, J. M. (2019) compare the understandings of environmental and sustainability-related issues of twenty 4-5-years-old children in kindergartens in Rogaland Norway, with the understandings of twenty similarly aged peers in kindergartens in Queensland, Australia. While Norwegian children seem to get more diverse outdoor opportunities, Australian children seem to have quite sophisticated ideas about sustainability-related interrelationships.

Ødegaard, E. E. & Marandon, A. (2019) describe and discuss what local weather landscapes mean to children and how weather implies exploring bodily sensations and capabilities. Through this study, the authors exemplify how experiencing weather is intertwined into pedagogical practices like habituating the body to cope with cold and wet weather, learning about danger in a wild natural landscape, and valuing species as a powerful practice. The descriptions exemplify "cultures of exploration" as a pedagogical approach.

Sageidet, B. M., Almeida, S. C., & Dunkley, R. (2018) investigate children's access to urban gardens in Stavanger, Norway, in Mumbai, India, and in Cardiff in the United Kingdom. Narratives based on literature studies and the author's own experiences and observations in the three cities, respectively, provide three perspectives with inspirations for promoting children's ecology, sustainability, and intergenerational learning in urban garden spaces.

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Foraging Eco-Ethology, Incentives and Motivations in the Kindergartens of Norway Based on Sámi and Norwegian Cultures

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Abstract: Early childhood education (ECE) institutions in Norway highly value nature and outdoor activities. The framework plan for kindergartens encourages that children get insights into the origin of food. The approach for imparting this knowledge incentivises foraging in kindergartens. The eco-ethology of humans is dependent on cultural values and practices and what is available for harvest in the local environments in different seasons. This paper explores the incentives and motivations for foraging in kindergartens in Norway through a qualitative approach. The data was collected from Sámi and Norwegian ECE professionals through on-site video documentation, group interviews, in-depth semi-structural interviews, and field notes. It was analysed using reflexive thematic analysis, in which the researchers had an active role in the process through reflexive engagement with theory, data, and interpretation. Three themes related to the incentives and motivations for foraging were found: (1) "viewpoints of nature", (2) "transfer and production of knowledge", and lastly (3) "motives and meaning for foraging". Norwegian ECE professionals seemed to view nature as a place to explore outdoors (termed friluftsliv) and Sámi ECE professionals used nature for a practical purpose (termed meahcci). Nature was used by all the ECE professionals for transfer and production of knowledge. The motives and meaning for foraging in ECE settings in Norway originated from the cultural values of purposeful use of nature's resources. Further studies are needed to investigate the prevalence and importance of foraging practices in ECE, especially in terms of its significance to education for sustainability.

Keywords: early childhood education; indigenous education; Sámi culture; Norwegian culture; foraging; sustainability; eco-ethology; friluftsliv; meahcci

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1. Introduction

Norway's cultural heritage is strongly rooted in being outdoors in nature for recreation, exercise, or livelihood (Breivik 1978). Livelihood has been connected to the local climate, landscape, and resources in the area where people dwell, and the traditions of hunting and gathering for wild food resources, also termed foraging, have correlated with what has been ripe or available through the shifting seasons. Most of the Norwegian landscape consists of either coastal areas with fjords surrounded by rocks and mountains or large mountainous areas with freshwater lakes surrounded by woodlands, plains, or wetlands. Only three percent of the land is cultivated for agriculture (innmark) (NIBIO 2017), and forty-four percent is intervention-free uncultivated land (utmark) (Miljøstatus 2018). The Norwegian government has provided a law, the Outdoor Recreation Act §5, which provides the Norwegian public's right to harvest wild food resources with due care in the uncultivated land (MCE 1957).

Recently, a governmental white paper (Meld. St.) entitled Friluftsliv (i.e., Outdoor life)—Nature as a source of health and quality of life was published (MCE 2016). It includes the harvesting of natural resources outdoors and suggests initiatives to increase activities such as hunting, recreational fishing, and berry and mushroom picking (pp. 89–98). The same document points out how outdoor activities in nature should be strengthened in the whole educational system by laying a solid groundwork in kindergarten (pp. 76–77). The framework plan for kindergartens also emphasizes this by stating that "the educators shall help the children gain an insight into food sources" (NDET 2017, p. 50). The core values of the framework plan on sustainable development say that the children shall be given opportunities to care for the natural environment and state specifically that "[. . .] for Sami children, this means living in harmony with, making use of and reaping the land" (ibid.) (p. 10).

In research connected to Indigenous peoples, it is important to be explicit about the authors' research positions. The first author is of coastal Sámi origin and has recognized her Sámi heritage in her adult years. She does not speak any of the Sámi languages due to the Norwegian colonizing history that resulted in the total loss of Sámi languages and signatures in the fjord where her family lived. Her grandparents understood the Sámi language and were food self-sustained from fishing, farming, foraging, and gardening. These cultural values have inspired her work as associate professor in natural science in early childhood teacher education (ECTE) at UiT the Arctic University of Norway. The second author is grown and educated in Finland. Her connection to Sámi early childhood education (ECE) is through her family connections, work, and research. She knows the North Sámi language. She has been working in ECE in Northern Finland for the past 20 years in different positions, and for the last 10 years in Sámi ECE as the head of a kindergarten with a Sámi unit. Currently, she works as an associate professor in Sámi ECTE at the Sámi University of Applied Sciences in Norway. Her recent research is about implementing Sámi pedagogical principles in Finland and Norway (Sámediggi n.d.).

This article aims to highlight the eco-ethology (behaviour ecology) of foraging in kindergartens in Norway from the perspectives of Sámi and Norwegian cultures. This means how kindergarten children and practitioners are motivated to do and perceive foraging practices in relation to their living environments. Specifically, we asked (1) what contributes to and motivates foraging activities in kindergarten, and (2) how do Sámi and Norwegian cultures support and encourage foraging in ECE?

1.1. The Sámi as an Indigenous People of Norway

The Indigenous Sámi peoples have traditionally lived in the northern part of Norway in a larger geographical region called Sápmi (the northern part of Norway, Sweden, Finland, and the Kola Peninsula in Russia). The Sámi have been recognized as an indigenous people in Norway since 1990, after the ratification of the ILO convention 169 (Regjeringen 2020). This ensures the Sámi legal rights to realize and develop their social and cultural identity, language, traditions, and institutions, and to decide matters that concern them. There are three official Sámi languages in Norway: North Sámi, Lule Sámi, and South Sámi. A variety of local traditions are connected to different Sámi landscapes (Joks et al. 2020) where foraging, the gathering of natural materials for traditional clothing, handicrafts, and the making of useful tools for daily living are carried out (Guttorm 2011).

The Sámi culture has arisen during a long history of interaction between the Sámi people and the surrounding landscapes and land. This relationship is still present today, even though most Sámi live modern lives (Valkonen and Valkonen 2014). Historically, the Sámi have been connected to the region's land and to their livelihood as reindeer herders (nomads between the inland and the coast due to the migration of the reindeer), fishermen (living in coastal areas), and forest Sámi (living in woodlands/inland). It seems that the tradition of foraging persists to some extent amongst the Sámi (Statistics Norway 2022b), and it is carefully done with respect to sustaining biodiversity (Nilsen et al. 2022; Utsi 2007).

Like other Indigenous people of the world, the Sámi have a strong connection to nature. The Sámi word meahcci is often used instead of nature in Sámi literature (Joks et al.

2020). This refers to a holistic system formed by people and meahcci. It includes spiritual, practical, physical, and geographical aspects of a purposeful relationship to nature (Joks et al. 2020; Nilsen et al. 2022). This implies knowing where and when to harvest different kinds of food resources and preparing the harvest for a meal outdoors, or to preserve it for storage at home. The strong connection to nature involves knowing how to do it in a sustainable way to ensure regeneration (Utsi 2007). The Sámi understanding of nature is beyond the physical environment (see also Biente 2021).

1.2. Foraging Traditions in Norway

Foraging practices in Norway have traditionally been a supplement for livelihood in old hunting, fishing, and farming settlements, especially in rural areas (Breivik 1978). The Norwegian diet has varied a lot since the 16th century due to where in Norway people live. In the cold Arctic region of Sápmi, the pursuit of livelihood was a full-time act of hunting and gathering all kinds of wild foods (Breivik 1978), while in the southern rural areas where agriculture, animal husbandry, and fishing in the sea were prevalent, berry picking, hunting, and gathering wild plants were only regarded as a supplement in times of need (Grøn 1942). The class distinction between town and country people also played a part in people's eating habits and outdoor practices. People from the towns regarded outdoor life as a part-time act for recreational purposes and physical activity rather than to forage for food (Breivik 1978; Grøn 1942). The local knowledge of how, what, and when to harvest natural resources was passed on from generation to generation in families from rural areas, especially amongst the Sámi. The Norwegian cultural heritage of valuing outdoor life or friluftsliv (Tordsson 2010) is based on a long tradition of outdoor activities, including foraging. The Nordic term friluftsliv has many meanings and can be translated as "free-life-under-the-open-sky" (Beery 2013; Gurholt 2015). The political definition of friluftsliv from the Ministry of Climate and Environment is "being outdoors and exercising in your spare time with the aim of recreational change and experience of nature" (our translation) (MCE 2016). However, friluftsliv is a wide term of practices in nature with motives to make "nature-friendly adventures" available to all (Gurholt 2015), including children in kindergarten (Neegaard 2022). We will use the term friluftsliv in this text concerning the Norwegian cultural perspective.

For the indigenous Sámi people of Norway, nature relations are essential values in Sámi culture and society (Valkonen and Valkonen 2014). Being self-sustained for food and everything else needed in daily life has been highly valued in the rural population, especially amongst the Sámi, and foraging has played a significant role in this respect. Foraging in Sámi culture plays an important role as part of the larger socio-ecological context. In the Sámi context, foraging relates to human–landscape connectedness. Foraging in the Sámi context means knowing the history of places, appropriate ways to forage, and foraging seasons. It contains an understanding of the meaning of foraging for both culture and landscape (Nilsen et al. 2022).

A report from Consumption Research Norway (SIFO) shows that "food from nature" is a trendy term that is associated with sustainability and a healthy, active, and simple life outdoors (Bugge 2015). According to the living conditions survey on sports and friluftsliv in 2021, almost 42 percent of those questioned stated that they pick berries or mushrooms in their spare time (Statistics Norway 2021). Chefs in Norwegian restaurants want to add local flavours to their menus (Helgesen et al. 2022), and several blogs and books have recently been published on harvesting wild foods.

1.3. Kindergartens in Norway

ECE institutions in Norway are termed kindergartens ("barnehage" in Norwegian; "mánáidgárdi" in North Sámi) and most children (93.4 percent) aged zero to six years are enrolled (Statistics Norway 2022a). There are 5420 kindergartens in Norway which are considered play-based and educational, having a child-centred approach (ibid.). They are organized very differently in the urban or rural parts of Norway. The urban ones may

have several units with 10–18 children in each unit divided by age (1–3 and 3–6), while the smaller ones have all age groups together. Usually, the Sámi kindergartens or Sámi kindergarten units have mixed age groups. The framework plan for kindergartens is the same for Norwegian language and Sámi language (and Sámi culture) kindergartens. The framework plan defines the fundamental principles, goals, learning content, and activities for the children, and core values are based on a child-centred view with emphasis on democracy, diversity, equality, sustainability, and wellbeing (NDET 2017). The indigenous Sámi people are especially included in the framework plan to ensure that Sámi kindergarten children gain support in "preserving and developing their language, their knowledge and their culture irrespective of where in Norway they live" (ibid.) (pp. 7–8). There were 32 Sámi kindergartens in Norway in 2020 (Johansen et al. 2020), in addition to approximately the same number of Sámi kindergarten units with Sámi-speaking educators where these obligations are met.

ECE practitioners in Norwegian kindergartens consist of ECE teachers (bachelor's degree in ECE) and teacher assistants with or without practical childcare education for two years (Statistics Norway 2022a). Some leading practitioners in larger kindergartens may also have a master's degree in ECE or special education pedagogy. There is at least one ECE practitioner for every 6th child in kindergartens of Norway (NDET 2022).

As mentioned previously, friluftsliv and nature encounters are highly valued in Norway, and this is also true for kindergartens (Sandseter and Lysklett 2018). The framework plan for kindergartens states that "kindergartens shall enable children to enjoy friluftsliv experiences all year round" (NDET 2017, p. 52), but it does not explicitly mention foraging. Instead, harvesting from nature is emphasized specifically for the Sámi children as a cultural pedagogical practice for sustainability (ibid.) (p. 10). The aim is to build relations to the land and, through that, to their indigenous culture. Foraging activities are natural practices to include in the ECE curriculum to ensure cultural, social, and environmental sustainability (Bergan et al. 2021, 2023; Laiti et al. 2022; Utsi et al. 2019). Foraging also supports Sámi values and pedagogical practices in nature (Bergan and Myrstad 2022; Laiti and Määttä 2022).

1.4. Eco-Ethology of Foraging in Kindergartens

The term eco-ethology refers to the study of the relationship between the behaviour of animals, or in our case humans, and their environments (Krebs and Davies 1981). When it comes to foraging, the eco-ethology of humans is highly dependent on what is available for harvest in the local environment and landscapes in different seasons, climate and weather conditions, as well as natural variations due to ecological factors (e.g., pollinating insects). Eco-ethology is also dependent on how cultural values and foraging practices are transmitted to the younger generation (Hitchcock 2019). Research on how foraging knowledge is obtained in early childhood shows it is mostly on the site of foraging through social learning (Boyette and Hewlett 2017), instructional teaching with trial and error (Lew-Levy et al. 2017), engagement in a community of foraging practices (Utsi et al. 2019), or child-to-child teaching (Lew-Levy et al. 2020). Since foraging is not a necessity for livelihood in modern societies, it has been advocated for inclusion in ECE as an act of developing an environmental identity and education for sustainability (Green et al. 2016; Green 2017) or developing a cultural identity (Bergan et al. 2021; Lunda and Green 2020). Foraging is also a mediator of ecological and social sustainability in ECE (Bergan et al. 2021; Laiti and Määttä 2022; Laiti et al. 2022). In indigenous contexts, foraging and other land-based practices have a broad meaning for building indigenous knowledge (Jackson-Barrett and Lee-Hammond 2018; Lunda and Green 2020; Rowan 2017) and indigenous pedagogy (Wildcat et al. 2014).

1.4.1. Foraging in Norwegian Language Kindergartens

There is one particular project in a Norwegian kindergarten in Finnmark (part of the Sápmi area) that explored foraging practices in depth during a three-year project

period. Three book chapters have been published from this project in Norwegian anthologies (Krempig and Utsi 2017; Krempig et al. 2022; Utsi et al. 2019) and one international publication (Bergan et al. 2021).

The first publication explored how food resources from the "wild" could be used for pedagogical purposes in kindergarten to support children's development, play, and learning (Krempig and Utsi 2017). Here, the project was thoroughly presented with respect to what kinds of wild food resources were harvested during what season and the further preparation of food products. The main findings were that the children showed interest and engagement to explore and taste different types of berries, plants, herbs, fish, Rock ptarmigan (*Lagopus mutus*) or Willow grouse (*Lagopus lagopus*), and reindeer. The foraging interest grew throughout the project period of three years. The children also showed verbal and bodily signs of gaining experience, understanding, and knowledge of where food comes from and how foods are prepared for a product or meal. The authors discussed the implications of foraging and how it can enrich kindergarten pedagogy with respect to promoting health, cultural perspectives on friluftsliv, the knowledge of food origin, interdisciplinary work, and sustainability (Krempig and Utsi 2017).

Other publications from this project explored foraging with respect to sustainability and how collaboration between kindergarten staff, children and external experts increased foraging competence (Utsi et al. 2019), and the collective learning resembled communities of practice (Wenger 1998). The findings suggested that the accumulated competence resulted in increased curiosity and engagement for what nature had to offer and that local experts on foraging supported the staff when they had knowledge gaps (Bergan et al. 2021; Utsi et al. 2019). The foraging repertoire and agency grew amongst everyone involved, and this was recognized as an agency for sustainability (Utsi et al. 2019). It represented a social way of learning that connected the children and staff to local food heritage and culture (Bergan et al. 2021).

The last book chapter from the same foraging project explored how friluftsliv in the form of foraging had an impact on nature connectedness or nature affiliation among the kindergarten children (Krempig et al. 2022). Recurrent firsthand encounters with, for example, fishing and picking berries were considered important for nature connectedness and for tasting harvests on-site outdoors.

A recent paper on foraging in a Norwegian kindergarten investigated the teacher's role in engagement in foraging activities (Bergan et al. 2023). The hallmarks of the teachers' role are to "facilitate adventurous experience", share knowledge through "child-centred communication" and "build collective knowledge and skills" for both children and staff. The paper argues for the role the teacher plays in foraging activities to advocate for and facilitate children's development in becoming eco-citizens who care for the natural environment (Bergan et al. 2023). The data material from this paper is revisited in this text with new research questions.

The take-aways from these studies are that foraging practices in ECE has relevance for children's learning, curiosity, and nature connectedness, their knowledge about local food resources, and competence and agency for ecological, social, and cultural sustainability. However, the cultural values and viewpoints which incentivizes foraging in ECE remains uncertain.

1.4.2. Foraging in Sámi Language Kindergartens

In Sámi culture, one goes to meahcci for a practical reason, such as to forage for food, find and prepare wood for a bonfire, find natural materials to make tools, and more (Nilsen et al. 2022). Among the Sámi, kindergarten foraging is one of many important outdoor activities (Bergan and Myrstad 2022; Laiti and Määttä 2022). The Sámi year is divided into 'eight seasons', each of which have specific characteristics and tasks (Helander 2021). In this way, the Sámi ECE is built on the cultural and historical context of the Sámi people.

The understanding of the interconnectedness of people and places is reflected in many ways in the Sámi ECE pedagogy (Becher et al. 2019). This understanding has directed the

goal of Sámi child-rearing and the ways in which children's learning is typically organized (Laiti Forthcoming). It also defines the activities preferred by Sámi ECE.

Foraging in a Sámi context is part of a larger cultural endeavour and pedagogical practice. It is part of the enculturation of children, which means the process by which an individual learns the traditional content of a culture and imbibes its practices and values (Keskitalo and Määttä 2011). The goal of Sámi child-rearing is to help children find their way in life, both physically and mentally. There is a value in Sámi child rearing named birgen, which means robust children who are self-reliant (Balto et al. 2019; Bjøru and Solbakken 2021). Foraging supports children's knowledge of local landscapes and ways to go around. When going in meahcci, children are asked to find their ways and pay attention to where they go (Bergan and Myrstad 2022). On the other hand, foraging provides possibilities for children to reason and think for themselves about what is good usage of nature resources, what is enough for their needs, and so forth, which again supports their birgen. According to the Norwegian framework plan for kindergartens, Sámi kindergartens should pass on Sámi values (NDET 2017, p. 24).

Children's learning is traditionally organized in searvelatnja (Sara 2003). Searvelatnja is a learning arena in which different generations meet and have the opportunity to participate in ongoing shared activities (Balto and Kuhmunen 2014; Laiti Forthcoming). In this kind of shared learning arena, children can observe and have guidance (Nilsen et al. 2022). Foraging activities are often organized in the form of searvelatnja where elders participate, contribute, and share their knowledge and experiences. Elders' participation is also to support endangered Sámi languages to remain alive and rich. In these shared moments, children hear stories about earlier foraging experiences and gain knowledge of plants, landscapes, and ways of foraging. Foraging also has meaning for Sámi children's cultural identity building. Sámi culture is born and grown with nature. Foraging supports children in getting to know and feel comfortable in meahcci. Feeling connected to meahcci also means a feeling of belonging to the Sámi community (Nilsen et al. 2022; Nystad et al. 2017; Tervaniemi and Magga 2018). Foraging is thus part of the children's enculturation process as they grow as members of their Sámi communities.

There is a rich Sámi cultural heritage originating from meahcci, or nature. Living directly in nature has formed both social orders like searvelatnja and the everyday practices and knowledge of child-rearing. Foraging is an important activity in Sámi ECE to make Sámi culture values concrete to children. As mentioned before, there is lack of knowledge on how foraging is incentivized and motivated ECE.

2. Materials and Methods

The purpose of this study was to highlight the eco-ethology of foraging in kindergartens in Norway from the perspective of Sámi and Norwegian cultures. These two cultural perspectives were chosen because they are both mentioned in the framework plan for kindergartens in Norway related to facilitating children's insight into food sources (NDET 2017). Two qualitative studies are included to be revisited with respect to foraging practices in Norwegian kindergartens, one from a Sámi ECE perspective (Bergan and Myrstad 2022) and the other from a Norwegian ECE perspective (Bergan et al. 2023). The details on methodology for both studies with respect to participants, methods and ethics are described previously (Bergan and Myrstad 2022; Bergan et al. 2023).

The Norwegian ECE study was a participatory action research investigating the teacher's role in engagement in foraging and gardening activities in kindergarten (Bergan et al. 2023). The study was undertaken in a medium-sized kindergarten (60 children aged 0–6 years) organized in four units in an urban setting in the northern part of Norway (part of Sápmi). The staff consisted of 9 teachers and 11 assistants. The study involved collaboration between a field researcher who was an external expert on foraging (first author) and Norwegian ECE professionals/teachers. The research was part of a larger project called "being and becoming eco-citizens" in "KINDknow (i.e., Kindergarten Knowledge Centre for Systemic Research on Diversity and Sustainable futures)" founded by the Norwegian

Research Council (grant no. 275575). The research was approved for following ethical standards by the Norwegian Centre of Research Data (reference no. 920483). Both staff and children's parents gave their written consent to participate. In addition, the children were asked to approve the filming during the activities, to which they all agreed. The data material consisted of on-site video documentation of the process of planning, engaging, and executing two foraging processes from harvest to product in August and September. The products were cordials made from extracts of Rosebay willowherb (*Chamaenerion angustifolium*) flowers and crowberry (*Empetrum nigrum*) juice. In addition to the video sequences, group interviews with kindergarten teachers and field notes from the field researcher were collected as data (Table 1). All data were anonymized.

Table 1. Data material used in this study.

Data Material	*The Sámi ECE Setting*	*The Norwegian ECE Setting*
Individual interviews	Four interviews of 30–55 min: 1. Female, 26 years' experience, pedagogical leader in a Sámi unit of an urban kindergarten 2. Male, 7 years' experience, pedagogical leader in a Sámi unit of an urban kindergarten 3. Female, 6 years' experience, pedagogical leader in a Sámi unit of an urban kindergarten 4. Female, 16 years' experience, pedagogical leader in an urban Sámi kindergarten	
Group interviews		Two group interviews of ECE professionals (Two participants in each group). The interviews were approximately 30 min each.
Video sequences		In total 8 h and 20 min
Field notes		Six field notes written by the field researcher (author 1)

The Sámi ECE study had the purpose of exploring Sámi kindergarten professionals (from Sámi heritage having a bachelor's degree in ECE) perspectives on friluftsliv and the use of nature as a resource for children's formal development and learning (Bergan and Myrstad 2022). This study was based on in-depth semi-structural interviews with four Sámi kindergarten professionals who worked in Sámi kindergartens or Sámi kindergarten units in different urban parts of Sápmi in Norway (Table 1). The study did not specifically aim to investigate foraging, but it was mentioned by all informants as an important part of their pedagogical practice in nature. Thus, we wanted to get more in depth into the incentives behind why foraging was considered an important practice in Sámi kindergartens. This research was also approved by the Norwegian Centre of Research Data (reference no. 869443), and the informants were asked for oral consent in a recorded Zoom interview. The interviews were transcribed and anonymized.

The data from both studies were analysed to answer the following two research questions:

1. *What contributes to and motivates foraging activities in kindergarten?*
2. *How do Sámi and Norwegian cultures support and encourage foraging in ECE?*

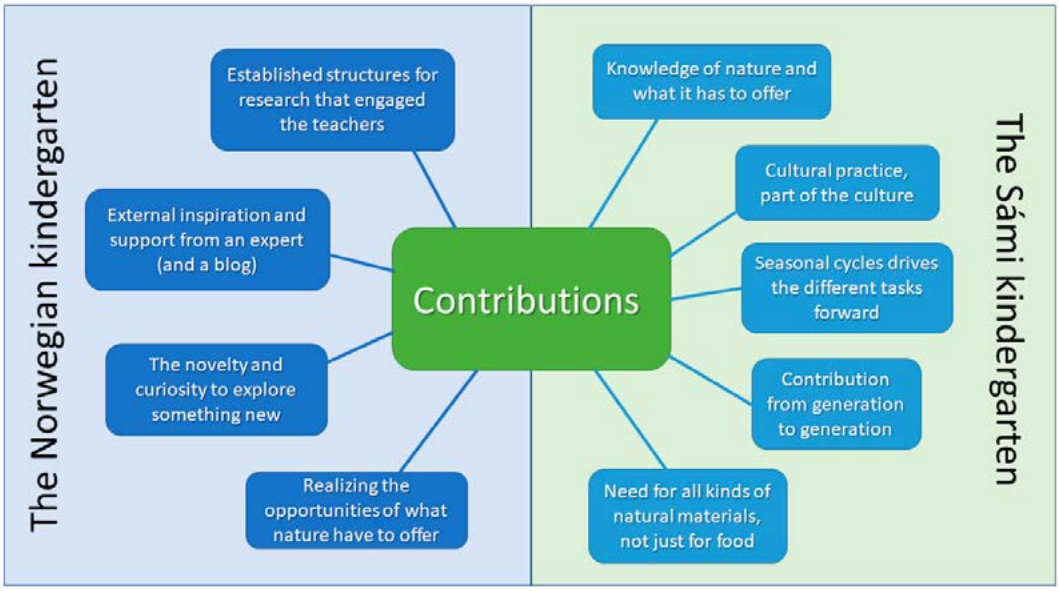
Analysis of Data

Since the previous studies investigated research questions based on Sámi educators' and Norwegian educators' viewpoints and practices, we here analysed what contributed to (reasons why, incentives) and motivated (moved the activities forward) foraging practices from the two cultures' perspectives. Based on the findings, the eco-ethology (the

behavioural aspect related to the environment) was further discussed with respect to its implications for future and cultural sustainability in ECE.

The data material was analysed using reflexive thematic analysis (RTA), in which the researcher(s) has an active role in the process through reflexive engagement with theory, data, and interpretation (Braun and Clarke 2020, 2021). The RTA method includes six steps (Braun and Clarke n.d.): (1) data familiarization; (2) data coding; (3) generating initial themes; (4) developing and reviewing themes; (5) refining, defining, and naming themes; and (6) writing the report. RTA was chosen because it "fully embrace qualitative research values and the subjective skills the researcher brings to the process" (Braun and Clarke 2021, p. 333) and because of the flexibility that lies in abductively developing themes as a "pattern of shared meaning, united by a central concept or idea" (p. 341).

The study design and data material were obtained by the first author (A1) who had previously described and analysed them (Bergan and Myrstad 2022; Bergan et al. 2023). Thus, the data was already familiar (step 1) and ready for new coding (step 2) through the lens of the new research questions. Data coding (step 2) was performed by A1 in a deductive way from the lens of contribution (why it came about, frames and reasons for doing it) and motivation (inherent and emergent motivations behind the activities). Then, A1 made two mind maps—one for contribution and the other for motivation—to get an overview of the headlines or initial themes of the coded data (step 3). The second author (A2), who had never seen the dataset before, also read through all transcripts, field notes, and initial coding to get an overview and familiarize herself with the data (steps 1–2). Then, A2 made similar mind maps to compare with A1 to align the initial themes (step 3). Thus, steps 1–3 were performed separately by the two authors to increase reliability. Through collaboration, the agreed-upon initial themes (step 3–4) resulted in Figure 1A,B. The authors met several times to refine, define, and name the themes of shared meaning of what motivated and contributed to foraging in the kindergartens (step 5). This phase of the analysis required looking through the details of the dataset for quotes and incentives for foraging from the two culture perspectives (reflexive analysis that was data driven). The role of A2 was specially to reflect to the dataset from the Sámi informants, since her research expertise is on Sámi ECE (Laiti 2018, Forthcoming; Laiti and Määttä 2022; Laiti et al. 2022). Both authors wrote the final report (step 6) of the agreed upon final themes and the findings that supported them, which follows next.



(**A**)

Figure 1. *Cont*.



(**B**)

Figure 1. Shared mind maps of initial themes for analysing and interpreting the data for what (**A**) contributes to and (**B**) motivates foraging in kindergartens with Norwegian or Sámi ECE professionals.

3. Results

In our data analysis, we find at least three themes that answer the research question: "What contributes to and motivates foraging activities in kindergarten?" First, foraging practices in Norwegian and Sámi kindergartens are based on the ECE professionals' "viewpoints of nature". Second, the data suggest that the "transfer and production of knowledge" on harvesting from nature to prepare food products are both different and similar in Norwegian and Sámi kindergartens. Lastly, the "motives and meaning for foraging" seem to diverge in the two kindergarten settings when we consider the question, "How do Sámi and Norwegian cultures support and encourage foraging in ECE?"

The following subsections will examine the three themes more in depth, as we believe the themes highlights the eco-ethology of foraging in Norway from Sámi and Norwegian cultural perspectives.

3.1. Viewpoints of Nature

The Norwegian and Sámi ECE professionals seemed to perform harvesting practices from different viewpoints of nature. For example, the Norwegian professionals realized the opportunities of foraging for crowberries (*Empetrum nigrum*) to make cordials while being outdoors in nature picking blueberries.

> We were picking blueberries and sort of discovered the local area, what we could find, right, and then we saw that there were crowberries too. [. . .] and there were lots of crowberries. [. . .] And we introduced the concept and possibility of making cordials of these berries [to the children].
>
> —Group interview, Norwegian kindergarten

The Norwegian professionals were used to picking blueberries with the children. However, they did not realize the opportunities for harvesting crowberries until they had become aware of the possibility of making cordials from crowberries (from a blog) and that nature had lots of it in their local area. It seemed that the Norwegian professionals viewed nature as exciting for the children to explore and to harvest tasty resources.

> The framing was very nice, and it was easy to be a child [. . .] everybody was out in the woods, some harvested [crowberries] in berry picker tools, some picked

> blueberries, some peeked mostly into the heather, and some were very busy [. . .] but we collected a lot, a lot of berries.
>
> —Group interview, Norwegian kindergarten

The Sámi professionals, on the other hand, used their knowledge of nature and what it has to offer to direct their activities. Knowledge about the 'eight seasons' laid the groundwork for the activities in kindergarten. This was mentioned by three out of four informants. Here are two examples:

> And when it comes to tradition, we want to work according to the 8 Sámi seasons and in each of these seasons we want to have traditional activities that are possible to carry out.
>
> —Informant 2, Sámi kindergarten
>
> We follow the Sámi 8 seasons and use it in "friluftsliv", for example in nature, in what needs to be done.
>
> —Informant 3, Sámi kindergarten

In the Sámi kindergarten, nature was valued as a resource for harvesting all kinds of materials to support their livelihood and culture. The Sámi professionals expressed that they wanted to use nature with purpose and not just for exploration:

> [. . .] and use nature, not just be there to look, but to use it for something useful and to show that you can somehow save yourself from some of what we find. And we have been chopping wood and we have tried [to harvest] senna grass, and we use [birch-branches] for the lavvo floor. And we gather berries and mushrooms and things like that.
>
> —Informant 1, Sámi kindergarten
>
> Nature is more than what we have around us. It is our "dinner plate". It is where we get our resources. That's where we get trees if we're going to make guksi (i.e., round cup from trees) or [more].
>
> —Informant 2, Sámi kindergarten

The Sámi professionals considered nature to be something that was of huge importance and provided all kinds of resources. They followed the 'eight Sámi seasons' and valued nature as a fundamental element in supporting their livelihood. The Norwegian professionals seemed to enjoy nature as a place to explore what it had to offer the children. These diverging viewpoints of nature may originate from cultural perspectives.

3.2. Transfer and Production of Knowledge

The transfer and production of knowledge seemed to be an overall contribution and motivation to forage in Norwegian and Sámi kindergartens. The Norwegian professionals got their new knowledge on foraging from the outside—from an external expert (the researcher). They were inspired to learn and do something new in the established research project. From the researcher's field notes, we read the following:

> I came to the kindergarten because the staff wanted to discuss what we now could do either in the garden or to harvest from nature. [. . .] I suggested that they could make cordials from meadowsweet (*Filipendula ulmaria*) since it now was ripe for harvesting. They had never done that before, so it sounded exciting.
>
> —Field note 1, Norwegian kindergarten

The knowledge transfer was initially inspired by the researcher, and later field notes and interviews confirmed that support from the researcher was essential for the foraging of flowers and berries to make cordials. This was particularly important because meadowsweet had produced seeds and was overdue on the day of harvest. The researcher wrote:

> When we arrived, I discovered that the meadowsweet (*Filipendula ulmaria*) flowers had gone to seed, so we wouldn't be able to make extracts from them anyway. But

> I also saw that there were a lot of Rosebay willowherb (*Chamaenerion angustifolium*) at the same place that they could pick instead. So, then it became possible to make Rosebay willowherb cordial instead.
>
> —Field note 3, Norwegian kindergarten

The interviews revealed that some of the Norwegian professionals had some knowledge of foraging before they became involved in these processes towards making cordials:

> When we keep on doing these projects concerning foraging and preparing food, we see a huge engagement in the staff and many [amongst the staff] have been involved in some of it before and have some knowledge about this. [. . .] It [foraging] is a very fun thing to do, yes.
>
> —Group interview, Norwegian kindergarten

The Sámi professionals seemed to get their foraging knowledge from generational transfers inside their culture. The knowledge of how, when, and where to pick cloudberries (*Rubus chamaemorus*) was mentioned by two informants:

> My grandmother used for example to get up at 4 am. She knew when the cloudberry was ripe. So, then it was important to get up first and being the first one out picking. That's how I've also been trained or [I have] learned through her.
>
> —Informant 2, Sámi kindergarten

> "Luomemeahcci". That means I am going to the cloudberry bog. I am grown up with that.
>
> —Informant 4, Sámi kindergarten

At the harvesting site, the transfer and production of knowledge seemed to be a collaborative endeavour that gave the children the freedom to choose to participate or explore on their own. This was confirmed both from the interviews and the video sequences at the site of harvest in the Norwegian kindergarten and from the interviews with the Sámi professionals.

> We make some arrangements and invite [the children] in and then there is also room for them to go out and sit down to pick blueberries or crowberries if that is the case.
>
> —Group interview, Norwegian kindergarten

The Sámi professionals emphasized that they followed the signs in nature and talked about them with the children:

> We talk about nature when we are on a trip. We try to notice and seize the moments when the children wonder about "what is here, or what is happening here".
>
> —Informant 2, Sámi kindergarten

> And then we constantly talk to the children about what is going on around them. We put words to those things.
>
> —Informant 3, Sámi kindergarten

Both Norwegian and Sámi professionals supported the children's learning of how to harvest by showing and explaining to them why things are done the way they are in the harvesting process. See also (Bergan et al. 2023) for a full overview of how Norwegian professionals interacted with the children.

One of the Sámi professionals highlighted sharing knowledge at the site in nature rather than beforehand.

> When the child comes and picks [berries] there next to you and you pick berries together, then you talk about "look here are blueberries while that is bog bilberries (*Vaccinium uliginosum*)". To look a bit at differences and such. Rather than showing a paper display with berries before we go.

—Informant 1, Sámi kindergarten

Foraging was also used as an arena to practice the Norwegian or Sámi language in both kindergarten settings:

> To use words [or language] actively [while harvesting]. [. . .] thinking about language and language environment. We are highly aware about having dialogues with children [in this foraging project].

—Group interview, Norwegian kindergarten

> We have picked blueberries and lingonberries with the children. What I see as very nice is learning the Sami words like "sarrit" which is blueberry and lingonberry which is "jokŋa", and "čahppesmuorjjit" which is crowberry.

—Informant 2, Sámi kindergarten

To sum up, the transfer and production of knowledge are important factors for foraging in both Norwegian and Sámi kindergarten settings. It seems that the Norwegian professionals obtain some of their knowledge from an external expert on foraging, while the Sámi professionals seem to have their knowledge from generational transfer and their cultural upbringing. The way all the professionals work with the children in nature is through collaborative learning, which gives the children a high degree of freedom to participate or explore on their own. Foraging is also an arena for kindergarten children's Sámi or Norwegian language learning.

3.3. Motives and Meaning for Foraging

Both Sámi and Norwegian professionals wanted to share knowledge and provide firsthand experience of foraging with the children, but their motives and meaning for doing this seemed to diverge from their cultural perspectives. Norwegian professionals were motivated by the novelty, engagement, and firsthand experience of harvesting from nature. They wanted the children to learn and explore freely and obtain experience with how nature is interconnected:

> We are in the woods, and we have this activity, right, and it is a part of a larger process and then we need to harvest enough crowberries. Some are engaged for a long time and gather a lot, and then there are others who think it is a little fun and want to do other things. [. . .] To understand such [nature] connections when [the children] are so young, I think it will be like that we give them elements about that—about how nature is interconnected.

—Group interview, Norwegian kindergarten

The Sámi professionals had their own meaning of foraging resources, as it was motivated by creating opportunities for Sámi enculturation:

> In most of the [Sámi] kindergartens I have been involved in, there is freshwater fishing. [. . .] They [the children] go fishing, and if we catch fish, we gut it and then we check—of course we investigate what's inside. They are involved in everything. They are allowed to try it themselves. They get to take part in fishing—we fry it or boil it and then they get to taste it. [. . .] We can salt it, smoke the fish. I didn't do that in kindergarten, but that's also part of the tradition really.

—Informant 4, Sámi kindergarten

One of the most pronounced motives for foraging among both the Sámi and Norwegian professionals was that they all wanted to teach the children where food comes from:

> We really emphasize that they should get to know where for example short-travelled food comes from. [. . .] It's everything from food traditions and things related to reindeer husbandry, fishing, nature in general, farming, grouse hunting—in short where the food comes from.

—Informant 4, Sámi kindergarten

To sum up, the motives and meaning for foraging, in kindergartens with Norwegian or Sámi professionals, were about connecting the children to nature and giving them insight into food resources. The motives and meanings also embodied the exploration and firsthand experience of nature, and for the Sámi professionals, foraging included Sámi enculturation.

4. Discussion

4.1. Foraging Eco-Ethology, Incentives and Motivations

The eco-ethology of foraging in ECE in Norway, from the perspective of Sámi and Norwegian culture, is based on a view of nature as a place to explore outdoors friluftsliv (Norwegian) (Tordsson 2010) and the use of nature with a practical purpose meahcci (Sámi) (Joks et al. 2020). Our results seem to reflect these two cultural perspectives when we investigate incentives and motivations for foraging activities in kindergarten. The Norwegian professionals viewed nature as an exciting place for the children to explore and to harvest tasty resources for making cordials. This resembles the idea of friluftsliv, which is about being outdoors with the aim of recreational change and the experience of nature (MCE 2016). However, they also learned about practical activities in nature, driven by what is available at the time and place of harvest in August and September. Foraging flowers and berries to make cordials was motivated by knowledge of nature from an external expert. To some sense, this practical knowledge had similarities to the relational view of nature—meahcci thinking. We must mention that the external expert was of Sámi heritage and was raised in a close relationship with the resources of nature.

The Sámi professionals used their knowledge of nature to direct their activities in accordance with the eight Sámi seasons—all year around. This view of nature is in line with meahcci thinking, which embodies a holistic and dynamic view of how people interact with nature according to deep knowledge (Joks et al. 2020; Nilsen et al. 2022). The view is also supported by our findings that Sámi professionals value nature as a source to harvest all kinds of materials to support their livelihood and culture. One of the informants expressed explicitly that the use of nature had a purpose and not just for exploration. Another explained that "nature is more than what we have around us". These Sámi cultural views of nature support a deep connection to meahcci to sustain their livelihood and the importance of nature for the Sámi people and culture (Valkonen and Valkonen 2014).

The transfer and production of knowledge was another important contribution to and motivation for foraging activities for Norwegian and Sámi ECE professionals. The Norwegian professionals seemed to get their new knowledge and support from an external expert or source (a blog) to make cordials. According to other studies, support from local expertise is a success criterion for the interest and engagement of both staff and children in foraging projects (Bergan et al. 2021; Krempig and Utsi 2017; Utsi et al. 2019). Some of the Norwegian practitioners in this study also seemed to embody foraging knowledge from beforehand in the process of harvesting and preparing crowberries. This supports the idea that foraging knowledge is still part of generational transfer in Norwegian culture. This is supported by a living conditions survey from Norway in 2021, where almost 42 percent of those questioned stated that they pick berries or mushrooms in their spare time (Statistics Norway 2021). However, we must mention that harvesting from nature is mostly done in the autumn by those of Norwegian heritage and rarely all year around, which is common in Sámi culture.

The Sámi professionals in this study seemed to get their foraging knowledge from intergenerational communication inside their families and cultures. This includes the principle of searvelatnja, which refers to shared learning spaces where different generations meet and work together and everyone can participate (Laiti Forthcoming). However, Sámi professionals have diverse family backgrounds and different practical experiences. They may also need input from elders, the traditional knowledge holders, if they have knowledge gaps. Foraging knowledge is likely to be transmitted in close relationships with nature in

the more rural parts of Norway, regardless of whether the professionals are of Norwegian or Sámi family heritage.

Our findings show that both Sámi and Norwegian professionals work with children in nature through collaborative learning and they use foraging as an arena for the children's language learning. The Norwegian professionals use words actively while harvesting and are aware of the language environment, while the Sámi professionals use the opportunity of foraging to learn words for the different kinds of berries (see Section 3.2). Previous studies have shown that the social learning of foraging in kindergarten resembles communities of practice (Bergan et al. 2021; Utsi et al. 2019). Recently, foraging has been found as an ideal arena for Sámi language practice for social sustainability in ECE (Kleemann 2021).

The final theme, motives and meaning for foraging, is especially relevant to cultural sustainability when carrying on cultural ideas of friluftsliv in the Norwegian context and meahcci in the Sámi context. Foraging as a part of friluftsliv has the purpose of connecting children to nature through firsthand exploration (Krempig et al. 2022) and knowledge of the origin of Norwegian food heritage (Bergan et al. 2021). This is in line with the motive for foraging of the Norwegian ECE professionals in this study. In addition, foraging practices, whether in Norwegian or Sámi ECE contexts, are highly relevant to education for sustainability (Bergan et al. 2021, 2023; Utsi et al. 2019).

The motives of the Sámi professionals in this study were based on an awareness of transmitting all kinds of cultural knowledges in nature with the Sámi children as a natural part of everyday life following the eight seasons. This is in line with Sámi ECE professionals' thinking in Finland (Laiti and Määttä 2022; Laiti et al. 2022). Outdoor activities have the purpose of making the children birgen—self-reliant in life (Balto et al. 2019; Bjøru and Solbakken 2021). This is also confirmed in our data, where children are invited to pay attention to things in nature and to participate in foraging tasks. Since indigenous knowledge is connected to activities implemented in nearby lands (Lunda and Green 2020; Rowan 2017), the meanings behind foraging practices are purposeful use of nature and making the children birgen (Bergan and Myrstad 2022). The Sámi people view their local landscape as a practical place, which includes foraging as a relational way of knowing and using the land (Joks et al. 2020). Therefore, foraging practices are an ideal arena for Sámi enculturation. Practices in nature in Sámi ECE are a necessity for the survival and sustainability of the Sámi culture (Laiti and Määttä 2022).

The eco-ethology of foraging in kindergartens of Norway, whether they are defined as Norwegian or Sámi ECE settings, originates from the cultural values of purposeful use of nature. Our data suggest that Sámi professionals have a deeper understanding of how nature can be used all year around, not only for harvesting food, but also other nature materials. Our Norwegian case study is from an urban kindergarten setting in proximity to natural areas that are suitable for harvesting flowers and berries, and the foraging activity was in the late summer/autumn. The harvesting season is in the Norwegian language is called "høst" (autumn in English), and the verb for harvesting from nature is called "høsting". The Norwegian harvesting season is also connected to traditions in agriculture and farming. The culture features of foraging from the Norwegian and Sámi perspectives may lay in the viewpoints of when to harvest—throughout all eight Sami seasons or just in the autumn (Western viewpoint). Maybe we need to broaden our foraging perspectives of what nature has to offer in proximity to where we live all year around.

The Outdoor Recreation Act of Norway and the framework plan for kindergartens encourage and facilitate foraging practices in all Norwegian kindergartens. This, in addition to cultural values and traditions for foraging, contributes to and supports eco-friendly practices for cultural sustainability and local food heritage in ECE.

4.2. Limitations

This study has its limitations, as it only represents qualitative data from one middle-sized urban kindergarten in Northern Norway and interviews with four Sámi ECE professionals from four different urban settings in the larger geographical region called Sápmi in

Norway. The sample is too small to generalize for cultural differences that are interindividual, age-related or location-related (urban vs. rural). Although the data material from the Sámi perspective is small (n = 4), it seems to be representative of Sámi viewpoints compared with the earlier material from Sámi ECE professionals (n = 23) in Finland (Laiti 2018). The topics and emphasis from the four Sámi informants herein were not specially intended to investigate foraging practices, but rather to explore outdoor or frilufstliv practices in Sámi ECE contexts. All informants mentioned foraging as an outdoor activity in kindergarten, which supported the importance of foraging as a living cultural practice in the Sámi context. Observational data from Sámi ECE settings should have been included to make it more comparable to the Norwegian ECE data.

The RTA method has its limitations as it embraces the subjective skills of the researcher immersing with the data set (Braun and Clarke 2020, 2021). Thus, the bias of author 1 (A1) may have influenced the coding process. Author 2 (A2) was thus invited to join in the RTA to ensure sufficient distance from the data in the initial tree steps, and to ensure that the Sámi culture perspectives were consistent with previous research. A2 also knows the North Sámi language and have overview of Sámi research literature. Braun and Clarke (2019) state that "Themes are creative and interpretive stories about the data, produced at the intersection of the researcher's theoretical assumptions, their analytic resources and skill, and the data themselves" (p. 594), which implies that the themes we have outlined are a mixture of our analytical skills in interpreting the data's shared meaning. Other researchers may have found other shared meanings, concepts, or ideas, but these may also be wrong as being out of context from the experiences we have on foraging and 'inside' cultural perspectives. For this reason, we have backed up the themes with rich descriptions of quotes from the interviews and field notes to support the themes' meaning.

Further studies are needed to investigate the prevalence and importance of foraging practices in ECE in a broader sense in Norway and the larger region of Sápmi, especially in terms of its significance to education for sustainability, birgen—children's self-reliance, wellbeing, and cultural identity development.

5. Conclusions

Knowledge about foraging is actualized nowadays, which is plagued by climate change, social and political instability, population migration, and even war. The knowledge and skills of gathering local foods from the wild are found in our cultures' histories. They have been passed down from generation to generation by our ancestors who knew how, when, and where to forage. Knowledgeable indigenous peoples, dependent on the fine balance of nature, view harvesting as a way of maintaining biodiversity and renewing resources. Our study shows that foraging practices in the Norwegian kindergartens appear to be a channel connecting the children to nature and local food resources. The cultural values of friluftsliv and meahcci are part of the eco-ethology, which contributes to and motivates foraging practices in ECE. What is striking is the role of external experts and/or elders sharing their knowledge with ECE professionals when the generational knowledge transfer is weak or non-existent. Collaborative projects on foraging with local experts seem to elicit engagement for learning and exploration for everybody involved. Because these projects focus on natural resources from the local area that nourish and stimulate our senses, it seems to be a fruitful way to work holistically with cultural values that reconnect the children with nature. Foraging practices outdoors engage both children and professionals in a way that has great potential for building deep knowledge of sustainability in all its dimensions, especially for the cultural dimension sustaining local practices in nature. The Sámi practical knowledge of nature and its changing seasons, which are embodied and emplaced in their culture through meahcci, is a way of using the land. Foraging is a way to share knowledge across generations about the dependence of all living things on Mother Earth. Definitively, starting with foraging in kindergarten or preschool could be the first step in building sustainability skills for future generations. Further studies will help

determine how children use their foraging knowledge and skills later in life and whether these activities foster agency for cultural values and a sustainable future.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and it was approved by the Ethics Committee of the Norwegian Centre for Research Data with protocol code 869443, date of approval 5 October 2021 (Sámi informants) and 920483, date of approval 12 September 2019 (Norwegian informants).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical considerations.

Conflicts of Interest: The authors declare no conflict of interest.

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The teacher's role for engagement in foraging and gardening activities in kindergarten

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ABSTRACT

Early childhood education provides an important arena for fostering valuable habits and practices for sustainability. This paper contributes to understanding the educator's role within early childhood environmental education in foraging and gardening practices. What pedagogical approaches does the teacher provide to foster the children's participation, engagement, and learning in such activities? To investigate this question, we used a qualitative approach, including video and on-site interviews with kindergarten teachers during foraging or gardening activities. We also analyzed semi-structural interviews and collected field notes for in-depth views and reflections from the teachers. The qualitative data were analyzed using reflective thematic analysis. The data analysis suggests three themes that exemplify hallmarks of the teacher's role: (1) facilitating adventurous experience, (2) child-centered communication, and (3) building collective knowledge and skills. The implications for the future are discussed with respect to the kindergarten teacher's pivotal function in supporting children as eco-citizens for sustainability. The data show that the kindergarten teachers' over-arching role is to take leadership of fostering engagement and learning for everyone involved.

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1. Introduction

Early childhood environmental education (ECEE) aims to connect children to nature (Ardoin and Bowers 2020) and its food resources through foraging (Nugent and Beames 2015) and gardening activities (Petrou and Korfiatis 2022; Rymanowicz, Heatherington, and Larm 2020). How to hunt or gather food from nature, also termed foraging practices, is pivotal for survival and has been taught to younger generations. The practice of agriculture dates back at least 21,000 years and has developed through hands-on experiences in close interaction with the environment, landscape, climate conditions, weather, and biodiversity at the location (Bowles, 2011). Knowledge of how to harvest or grow food locally is actualized in a modern world where many children live in urban settings threatened by social and political instability, climate change, population migration, and even war. Everybody needs daily meals, and knowledge and skills on how to grow or harvest food from nature should be included in education for the youngest children. Moreover, the roles of educators and practitioners in early childhood education (ECE) in

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supporting children's learning in gardening and foraging practices must be pursued. This has relevance to both ecological, social, and cultural aspects of education for sustainability (EfS) (Bergan et al. 2021), as well as supporting young children's development of being and becoming active eco-citizens that value nature (Heggen et al. 2019). We define children's eco-citizenship as a child-sized citizenship where the more-than-human parts of the world's eco-system is included (Heggen et al. 2019). Children's eco-citizenship is in line with recent research that suggest that children's connection to nature impacts sustainable behavior and happiness in children (Barrera-Hernández et al. 2020).

For the last decade, research on early childhood education for sustainability (ECEfS) has increased, and we find an emphasis on outdoor, nature-based, or project-based programs that support children's agency and participation for sustainability (Ardoin and Bowers 2020; Bascopé, Perasso, and Reiss 2019; Elliot, Ärlemalm-Hagsér, and Davis 2020; Rymanowicz, Heatherington, and Larm 2020). Nature-based learning in ECE impacts children's environmental literacy, cognitive development, and social and emotional skills (Ardoin and Bowers 2020; Rymanowicz, Heatherington, and Larm 2020). However, the role of the *kindergarten teacher* or *practitioner* in supporting and facilitating such learning in nature has been less investigated.

1.1. Foraging and gardening practices in ECE

The Swiss pedagogue J. H. Pestalozzi (1746–1827), who was preoccupied with the practical work of agriculture, inspired the modern education of children with the motto 'Learning by head, hand and heart' (Brühlmeier 2010). Pestalozzi's ideas were later developed by the German educator F. Fröbel (1782–1852), who created the concept of the 'kindergarten' as an educational institution for the youngest children. In Fröbels kindergartens, the teacher supports the children's learning and development using the garden and nature as key components (Herrington 1998; Marín Murcia and Martínez Ruiz-Funes 2020).

Harvesting food from nature and gardening activities provide young children with close interactions with nature as a resource for food (Miller 2007). The benefits for children may be healthy eating habits (Pecaski McLennan 2010) and knowledge of the origin of food through the connection to the local cultural heritage (Chipeniuk 1998; Nugent and Beames 2015). Foraging and gardening also contribute to authentic work with real tools, with direct insights into the interconnection of species. The explorative and participatory aspects of these practices in collaboration with peers, kindergarten staff, family, and the community have impacts on the children's engagement in the task at hand (Bergan et al. 2021; Keith 2005; Koloszuki Maciel et al. 2022). Children's active engagement in and for the natural environment by harvesting or cultivating food may be a starting point toward a sustainable future (Bergan 2019; Bergan et al. 2021).

1.2. The educator's role in ECEE

We find few empirical studies on the educator's role with children in ECEE, and even fewer studies referring to foraging and gardening practices. Most studies and theoretical literature emphasize the benefit of the outdoor environment for young children's holistic learning and development (Ardoin and Bowers 2020; Meier and Sisk-Hilton 2017), but not as much focus on how the educator fosters these benefits. Research shows that the challenge for kindergarten teachers to facilitate adequate learning in the natural environment may be grounded in educators' lack of scientific knowledge or experience (Davies and Hamilton 2018; Torquati et al. 2013).

Ardoin and Heimlish (2021) advocated for an 'environmental learningscape framing' that incorporates what individuals retain cognitively, affectively, and skill-wise from across many encounters with nature accumulated over time. This perspective is in line with Lave and Wenger

(1991) situated learning theory of real-life activities through participation in a community of practice. The role of the educator in these nature meetings is to initiate and maintain a dialogue with the child about everyday events situated in local and cultural practices (MacQuarrie, Nugent, and Warden 2015; Rogoff, Matusov, and White 1996). Rogoff (2014) proposed calling this type of cultural learning in a family and community setting 'learning by observing and pitching in' (LOPI). LOPI is defined by seven features that are significant for the teacher's role to the learner (Rogoff 2014): 1) the learner is included to contribute, 2) the learner is guided or supported, 3) the endeavors are collaborative, 4) the goal of learning is to contribute, 5) the learning attracts attention (current or anticipated), 6) communication is based on shared reference, and 7) feedback supports the learner's mastery. Elements of LOPI are widely used for learning in indigenous communities (Rogoff 2014; Rogoff et al. 2007). Generational knowledge about the environment may also be taught through 'education of attention' (Ingold 2000), in which the child is instructed to feel this, taste that, or watch out for different natural elements (p. 22). The educator's role is to point out significant information or clues that the child is instructed to attend to.

Another role for the educator in the natural environment is to create and maintain children's curiosity and wonder about what is found or perceived outdoors (Heggen and Lynngård 2021; Skalstad and Munkebye 2021). The teacher follows the children's interests, aiming to create rich experiences for children by building on their interests and signals either through dialogue or providing tools to explore (Heggen and Lynngård 2021; Ramanathan, Carter, and Wenner 2021). If the teacher is attentive and interested, the children tend to prolong their interest, delving even deeper to understand (Heggen and Lynngård 2021). The teacher's ability to follow up on the children's questions (Skalstad and Munkebye 2021) and ask open-ended questions is important to increase the children's curiosity and involvement (Ramanathan, Carter, and Wenner 2021). The natural environment also invites children to explore authentic life matters with a backdrop of uncertainty, novelty, and challenge that may be called 'adventurous learning' (Beames and Brown 2016; Jickling et al. 2018). Not knowing what to expect may motivate us all, especially children, to explore and learn more (Solly 2014).

In summary, the teacher plays a pivotal role in fostering children's engagement, curiosity, experience, and learning outdoors in nature. We have previously shown that participatory learning in kindergarten of foraging and gardening over time resembles communities of practice (Bergan et al. 2021), and that these endeavors build collective knowledge in both staff and children. In the following, we aim to look more closely at the role of the educator in foraging and gardening practices and investigate what contributes to children's growing eco-citizenship (Heggen et al. 2019).

1.3. Background and purpose of study

Norwegian kindergartens are educational and care institutions for children from birth to six years of age, and 93.4 percent of all children in Norway are enrolled (Statistics Norway 2022). The framework plan for kindergartens in Norway is grounded on a socio-cultural view of learning, and core values are based on a child-centered view with emphasis on democracy, diversity, equality, sustainability, and wellbeing (Norwegian Directorate for Education and Training 2017). In Nordic culture, nature encounters are highly valued. Accordingly, outdoor play and learning in the natural environment are equally important in kindergartens (Grindheim 2021; Sandseter and Lysklett 2018). Another element in Norwegian culture is the 'Outdoor Activities Act,' which ensures everyone access to natural areas for activities such as hiking and recreation, as well as the opportunity to harvest wild plant resources, fruit, berries, and mushrooms for their own use (Ministry of Climate and Environment, 1957). The framework plan for kindergartens specifies that 'Kindergartens shall help the children to […] gain an insight into food sources, food production and the path from ingredient to meal' (Norwegian Directorate for Education and Training

2017, p. 50). This means that foraging and gardening activities are natural practices to include in the ECE curriculum to ensure cultural, social, and environmental sustainability (Bergan 2019; Bergan et al. 2021; Utsi, Bøe, and Krempig 2019).

The purpose of this study was to investigate the kindergarten teacher's (hereafter called 'teacher') role in foraging and gardening activities in a kindergarten context in the Arctic region of Norway. To delve more deeply into what key elements foster engagement in these activities, we posed the following research questions:

1. What contributes to kindergarten children's (and staff's) engagement, experience, and learning?
2. How does the kindergarten teacher inspire and attract children's attention?

These questions are further discussed with respect to how the teacher fosters children to be and become eco-citizens.

2. Research design and methodology

To obtain in-depth insights into the teacher's role, we chose a qualitative methodology (Silverman 2020). The study was approached as participatory action research with the aim to include the persons being studied in the design, execution and dissemination (MacDonald 2012). More specifically, this is a case-based learning study (Runesson Kempe 2019), in which the 'field researcher' (first author – hereafter called researcher) and the main kindergarten teacher (fourth author) collaborated on documenting the activities and supporting the children in performing foraging and garden activities (see Tables 1 and 2).

2.1. Research setting and participants

The study was undertaken in a medium-sized kindergarten (60 children aged 0–6 years) organized in four units in the northern part of Norway. The staff consisted of 9 teachers and 11 assistants, where 7 teachers took part in the activities (Table 1). The main teacher (fourth author) had a leading role in data collection and activities with the children. Initially, the main teacher situated himself as a contributor to the research project by engaging, planning, and execution the agreed upon activities and collecting video data along the way. During the process with the crowberries (see below) he began to view his role as a co-researcher. The research was a part of the 'KINDknow – Kindergarten Knowledge Centre for Systemic Research on Diversity and Sustainable Futures' founded by the Norwegian Research Counsel (grant no. 275575) and was approved for following ethical standards by the Norwegian Centre of Research Data (reference no. 920483). The staff and the children's parents gave their written consent to participate. In addition to the parents' consent, the children were asked to approve the filming during the activities, to which they all agreed. All data were anonymized.

Table 1. Demographics of the participating kindergarten teachers.

Gender	Years of teacher experience	Years of experience with gardening in kindergarten
Female	9	5 and adult life
Male*	10	3 and childhood
Female	17	5 and childhood
Female	27	5 and whole life
Male	31	5
Female	37	5 and childhood
Female	39	5 and childhood

*Main teacher.

Table 2. Overview of video sequences for the different activities or tasks (total 8 h and 20 min).

Activity – task	Length of video	Data collector
Harvesting and rinsing flowers to make cordials outdoors	92′ 42″	Field researcher
Harvesting and rinsing flowers to make cordials outdoors	93′ 25″	Main teacher
Separating flowers, adding sugar, and tasting indoors	38′ 35″	Main teacher
Separating flowers, adding sugar, and tasting indoors	39′ 9″	Assistant teacher
Picking crowberries outdoors in the woods	38′ 40″	Main teacher
Rinsing crowberries and crushing the berries indoors	29′ 39″	Main teacher
Separating crowberries and adding sugar indoors	72′ 1″	Main teacher
Tasting crowberry drink and preparing for storage indoors	53′ 3″	Main teacher
Harvesting potatoes outdoors	43′ 13″	Field researcher

2.2. Foraging and gardening activities

The study investigated the teacher's role in the process of retrieving and utilizing resources from nature during the 2021 harvesting season with children in kindergarten. The main teacher documented the process of planning, executing, and working progress to the product of collecting Rosebay willowherb flowers (*Chamaenerion angustifolium*) and crowberries (*Empetrum nigrum)* to extract juices and flavors to make cordials. The area for collecting flowers and berries was a 5–10 minutes' walk from the kindergarten (see Figure 1). In addition, the process of planting potatoes to grow crops for harvesting was done within the fence of the kindergarten and was filmed by the researcher. The researcher supported and collaborated with the teachers to build experience, skills, and knowledge in foraging and gardening on terms with the children.

2.3. Video sequences

The researcher and/or the teachers wore GoPro cameras during the activities. Apart from the researcher, the main teacher wore the GoPro Camera most of the time. Video sequences were collected, as summarized in Table 2.

The videos were cut to extract only essential material for the research and were further transcribed.

2.4. Field notes

The researcher visited or communicated with the teachers at several stages of planning or executing the different activities. Communication, either by e-mail, phone, or physically during collaboration meetings or observation of activities in the kindergarten, was thus recorded as field notes.

2.5. Group interviews

Two group interviews (approximately 30 min each) were conducted with the teachers responsible for leading and organizing the different endeavors with the children and the staff. The interviews were performed and recorded on zoom and then transcribed. Member checking (Creswell & Miller, 2000) was undertaken by doing a follow-up in depth focus group interview while showing the video material to the informants. Moreover, one of the informants was given authorship (fourth author) and was thereby included in the process from collecting data to writing the article.

2.6. Analysis

The qualitative data material was analyzed based on reflexive thematic analysis (RTA) (Braun and Clarke 2021) with a collaborative approach (Eggebø 2020). RTA is described as a six-phase process for data engagement that leads to overall themes based on our research questions (Braun and Clarke 2021). The analysis process was partly done collectively with either two or

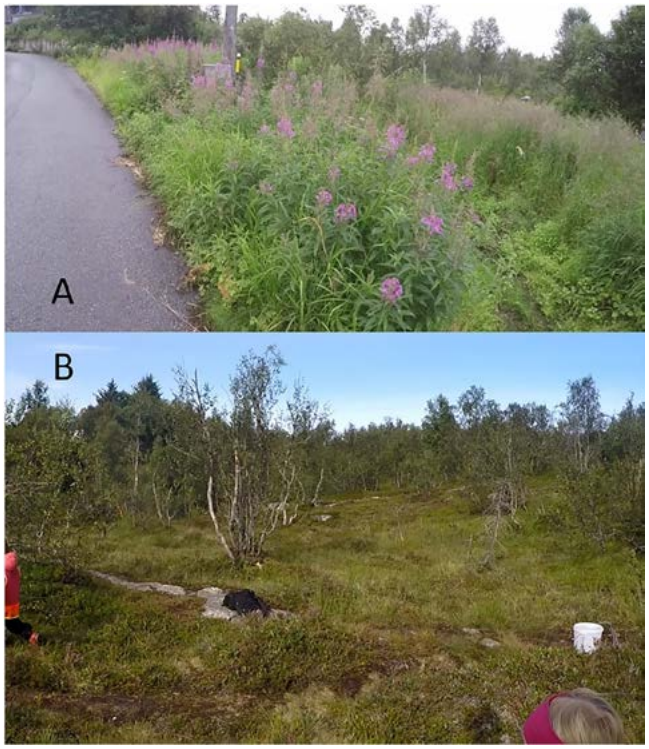


Figure 1. Pictures of the area where Rosebay Willowherb (A) and Crowberry (B) were harvested.

three authors (Eggebø 2020). This was important to pursue a professional distance from the findings, since the first and fourth authors also participated in data collection.

Initially, the first three authors read all transcribed data material and wrote familiarization notes (1) before meeting to systemically code the data (2). During the first meeting, Authors 1 and 2 watched the video sequences together to ensure that our coding was aligned. The coding was data-driven (inductively) and frequently revealed codes such as 'recalling,' 'explaining,' 'repeating notions,' and 'asking questions.' The codes were then collectively categorized by all authors into initial categories such as (3) 'verbal communication,' 'contributions to engagement,' 'competence building,' 'leadership,' and 'treasure hunting'. Developing, reviewing (4), and refining (5) themes included collectively interpreting the data based on our research questions, which resulted in writing a report (6). The themes from the analysis were named 'facilitating adventurous experiences,' 'child-centered communication,' and 'building collective knowledge and skills.'

3. Results

The aim of this study was to explore the teacher's role in foraging and gardening activities. Three activities were included in this study: 1) collecting 'Rosebay willowherb' flowers (*Chamaenerion angustifolium*) in early August; 2) picking 'crowberries' (*Empetrum nigrum)* in late August, both activities resulted in making cordials; and 3) harvesting 'potatoes' to make potato chips, which was an annual endeavor in late September. The different tasks in each activity are summarized in Table 3.

The idea for the first activity was inspired by a conversation between three teachers and the researcher, in which they elaborated on what nature had to offer for produce at this time of year (early August). The researcher suggested making cordials and becoming an external

Table 3. Overview of different steps in the three activities.

Activity	Preparation	Step 1	Step 2	Step 3	Step 4
1. Roseberry willowherb flowers (*Chamaenerion augustifolium*)	Preparing the children by asking about what they know about juices and cordials. e.g. how they are made and what kind of drinks they like. – *indoors*	Mapping the nearby area with the children for where to find the flowers and drawing a 'treasure-map'. Determining different plant species by using an app[1] on site. – *outdoors*	Following the map to harvest flowers and separating them from leaves and insects. Adding hot water and citric acid onto the flowers to extract the flavours. – *outdoors*	Sifting the flowers from the extract and adding sugar. Tasting the drink. – *indoors*	Serving the colourful floral cordial with foods. Store the cordial in flasks in the freezer for later use. – *indoors*
2. Crowberries (*Empetum nigrum)*	Observing where to find crowberries in the woods. Buying children size berry picker tools and containers for picking. – *outdoors*	Taking a trip to the woods with the children and picking berries with berry picker tool in containers. – *outdoors*	Separating berries from leaves, insects and other detritus. – *indoors*	Crushing berries with preboiled water in a blender to extract aromas. – *indoors*	Sifting the berry debris from the exctract and adding sugar and citric acid for taste[2]. – *indoors*
3. Potatoes	Preparing the soil by weeding, adding chicken manure, and using different tools with the children. – *outdoors*	Planting parent potatoes with tools and explaining the role of earthworms in the soil. – *outdoors*	Attending the growth by weeding and watering the plants. – *outdoors*	Harvesting potatoes by using different tools with the children. – *outdoors*	Counting the harvest and making potato chips in the kitchen. – *indoors*

[1]Artsorakel (artsdatabanken.no)
[2]Step 5: Freezing the finished cordial into ice pops sticks. Some cordial was also served as a drink at special occations or stored in the freezer.

expert to inspire and support the teachers in trying something new. The activities were further planned and led by the teachers.

Based on our data analysis, we observed extensive collective engagement in the process of hunting for treasures in nature. The teachers functioned as the 'expedition leader' who 1) *facilitated adventurous experiences* or learning, who executed a high degree of 2) *child-centered communication*, and who was conscious about 3) *building collective knowledge and skills* for everyone that was involved. In the following section, we examine each of these three themes and provide examples.

3.1. Facilitating adventurous experiences

The process of picking flowers or berries to make cordials lasted a whole week with different tasks each day (Table 3), and the teachers had to capture the children's attention along the way. Since neither the staff nor the children had experience of what to do or expect, this became an adventurous and open-ended process led by the teachers with an enthusiastic and curious tone. This curiosity may be exemplified in this conversation between a teacher (T) and a child (C):

T: If we make a cordial out of these [flowers], how do you think it will be? What color do you think it [the cordial] gets?
C: Purple! (enthusiastic)
T: Yes, it will be exciting to see. I have not made this kind of cordial before.

New discoveries, curiosity, following the children's own interests, and open exploration were facilitated and ventured by the teachers in many ways (Table 4).

We were stroked by the bodily expressed eagerness we observed in the children in the video sequences; the noise level of their excitement was high, especially in the potato field. Bodily eagerness was supported by the teachers and was expressed in the children as interest in tasting, smelling, participating, etc. The teachers' role was to build anticipation and engagement for the different endeavors and to explore, execute, and wonder with the children without knowing the result. They led the expedition, kept the overview from start to end, and were conscious of letting the children explore with their senses and use tools to ease and aid the 'work' and the discoveries.

In this study, the teachers seemed to function as the 'expedition leaders' for the activities that led to new discoveries, both connected to hunting treasures from local places in nature, but also from leading the process of gaining experiential knowledge from harvest to product. The novelty of the activity of transforming flowers or berries into colorful and tasteful cordials created curiosity for the process in an adventurous way for all participants.

3.2. Child-centered communication

Throughout the harvesting activities, we met teachers who were attentive to the children's questions, initiatives, and interests. The child-centered communication (CCC) was mostly inquiry- and dialogue-based, with a respectful and engaging style. The children led the way, and the teachers were open to adjustments. This is exemplified in a dialogue between a teacher (T) and two children (C) while picking crowberries.

C: We found a mushroom. Follow us! Mushroom!
T: Did you find a mushroom?
C: Do you want to look at it?
T: Yes, I will very much look at it. […] Where is it?

The CCC also involved creating excitement to find a treasure (flowers) by creating and following a 'treasure map' or by counting to ten before starting a noisy blender to crush berries.

Table 4. How 'facilitating adventurous experiences' is articulated with the children.

Rosebay willowherb	Crowberries	Potatoes
Searching for where the flower species is located by mapping the nearby area with an app with the children. – *field notes*	Reading, printing out, and exploring the process on how to make crowberry cordial on a blog. – *field notes*	Building anticipation and eagerness in the children in advance by talking about the task ahead. – *interviews*
Creating a 'treasure map' for where the flower is located with the children. – *videos*	Letting the children explore nature on their own. Treasure hunting for berries and mushrooms. – *videos*	Encouraging the children to explore what is hidden in the soil (different kind of potatoes and earthworms). – *videos*
Asking curious questions on what the children think or expect in the process. – *videos*	Following up the children's interest for what they find in nature (e.g. mushrooms and litter). – *videos*	Expressing "I wonder how many can be found?" The children are then eager to find more. – *videos*
Having personal and contagious engagement and curiosity for the different tasks. – *interviews*	Trying out new tools for harvest, separation and crushing berries (e.g. berry picker tool). – *videos*	Introducing new tools (pichfork) to be able to dig deeper gives increased interest. – *videos*
Following up the children's interest for what they see in nature (e.g. insects). – *videos*	Following up the children's suggestions for what to make (ice pop juice on a stick). – *interviews*	Supporting the excitement around the different forms and sizes of the potatoes. – *interviews*
Inviting the children to explore with their senses (touch, smell, taste, colour). – *videos*	Exploring the novility of the taste and shifting colour (e.g. from adding sugar and citiric acid). – *videos*	Responding to children's sayings: "look, I found another one" "look, I found an earthworm" – *videos*

Table 5. How 'child-centered communication' is expressed in the video sequences.

Recalling	Motivating	Asking questions	Instructing	Explaining
Reminding the children about the goal of making a cordial or juice (food product)	Verbally acknowledging the children's work: "when you spread the flowers, then I could find more green leaves"	Asking open-ended questions to invite the children to elaborate on what they see and think during the activities	Giving instruction on what part of the flower should be picked and not to pick leaves and knots	Describing why we need to separate flowers and berries from leaves, insects and other detritus to make a good drink
Recalling previous events: "Do you remember previously […] planted potatoes?"	Encouraging and inviting the children to use their senses (taste, smell, tactile/softness, visual/colour)	Asking leading questions such as: "do you know what this is?" "do you want to..?"	Giving instruction on what kind of potatoes should be harvested (not parental potatoes)	Explaining why the potato plant has become yellow and withered and is ready for harvesting
Repeating difficult words (geitrams[3], krøkebær[4], greip[5])	Encouraging the children to participate and helping with the task at hand	Making inquiries about the role of specific things in nature (insects, earthworms etc.)	Showing how to use tools for harvest (berry picker, pichfork, etc.) and processing (blender)	Demonstrating why the sugar is more easlily dissolved in the floral drink by adding heat

[3]English: Rosebay willowherb
[4]English: Crowberries
[5]English: Pichfork

The children's attention seemed to be more easily captivated outdoors than indoors. The children wanted to participate when the teachers called out for action. The CCC also seemed intended for learning that can be described as *recalling, motivating, asking questions, instructing, and explaining* (Table 5).

We found many examples of CCC in all the video material. 'Recalling' was exhibited by recalling previous events, offering reminders about where they were headed, and repeating difficult words (see also Section 3.3). 'Motivation' was related to encouraging the children to participate or use their senses to explore, or verbal acknowledgement of their work. The teachers asked many open-ended 'questions' that either led toward specific or inquiry-based aspects about the role of different elements in nature, or different steps toward making the cordials. 'Instructions' were given both verbally and by showing how things were done (practical skills). The instructions had elements of 'do this – not that' and were mostly followed by 'explanations' of why things were done in certain ways. The teachers were conscious of informing the children of why things were done with the aim of a product in sight, and they demonstrated physical laws (e.g. sugar is more easily dissolved in hot liquid than cold) when the opportunity emerged. This leads us to the last theme, which addresses the role of the teacher in 'building collective knowledge and skills,' both on behalf of the children and the staff.

3.3. Building collective knowledge and skills

The teachers were responsible for taking the lead in building collective knowledge and skills in the activities from harvest to product, both on behalf of the children and the staff. The main teacher collected knowledge about the process by reading and printing the recipe in advance and reached out to the expert with hands-on knowledge (the researcher) when the written knowledge was unclear. The teachers also invited the researcher to participate in a field trip to the meadow to harvest flowers. A 'treasure map' was drawn together with the children to make sure they knew in advance where to find the right species at the field site close to the kindergarten.

The teachers were especially attentive to sharing knowledge with the children by repeating new concepts and words to ensure they sticked. This is exemplified in the following conversation:

T: Do we remember what this [flower] is called?
C: No.
T: It has the same name as an animal (waits for the child's answer).
T: Geit-rams[1] [English: Rosebay willowherb]
C: Yes, geitrams!

The teachers also consciously told the children which part of the flower should be harvested to make the cordial: 'Look, we can pick this flower part. We should not pick the leaves or the flower knots [pointing at different plant parts]'. Thus, the knowledge and skills that were the teacher's main concern were transmitted to the children (see also Table 5).

The interviews confirmed that the teachers were eager to build new competences for all the children involved. The enthusiasm and interest for learning and participating in these activities was surprisingly high, as was the inherent force in the activities themselves. The video sequences showed that learning from an online source had limitations, and the staff had to learn through trial and error. They experienced that a food processor was insufficient to crush crowberries, so they had to use a blender instead. They also had to adjust to make the sugar dissolve more quickly by heating the floral cordial and cooling it again before tasting with the children. They discovered that each step took time.

The ownership of the activities was distributed among the entire staff, but the teachers were responsible for the pedagogical work with the children and leaned on each other in the different tasks. The endeavor of harvesting flowers and berries to make cordials was new to the staff. The teachers had more experience with picking berries than flowers (picking berries is a cultural tradition), and thus, the external expert was a significant factor in making the floral cordial. This was particularly important, as the flowering time for the rosebay willowherb was limited to approximately 15 days in early August. The initial intent was to pick meadowsweet (*Filipendula ulmaria)* to make a cordial, but it had produced seeds at the time of the field trip and was thus overdue for harvesting. Fortunately, meadowsweet and rosebay willowherb grew at the same location (Figure 1A), and the plans were easily changed on the day of harvest because the researcher came along.

The teachers' competence in growing potatoes developed over time and was based on experiences from several years. The transmission of knowledge and skills was easily spotted in the video sequences, as the teacher explained and showed the children how one potato was 'parent' for many 'baby' potatoes. The children quickly learned the difference between the brown parent potato and the new red potatoes. An on-site interview with one of the teachers at the end of the potato harvest revealed that the intent for this activity was for the children to participate—to acknowledge the children's efforts in harvesting potatoes so that they knew how it was done, and that it was possible to grow potatoes where they lived. The teachers specifically allowed the children to do the work, and did not do it for them, thus teaching them the skill of harvesting potatoes.

Together, these findings reveal the crucial role of the kindergarten teacher in venturing into explorations, such as foraging and gardening, by taking responsibility for and leadership both on behalf of the children and the staff. In this study, adventurous leadership took the form of the teachers' personal engagement in CCC and through building knowledge and skills for everyone involved. The drive for the children's great enthusiasm and the teachers' curiosity may partly be explained by their personal interests in learning something new as well as the value in transmitting culture to the children through learning real concepts by harvesting treasures from nature.

4. Discussion

This study asked *what contributes to kindergarten children's (and staff's) engagement, experience, and learning* in foraging and gardening activities? We found that the teacher's own engagement

and leadership in 'facilitating adventurous experiences' is a key element that contributes to the children's experience and engagement (Table 4). Engagement is contagious, and excitement for exploring new things, not knowing what to expect, enacts curiosity that has inherent motivation. We observed that the teacher met the children's questions, interests, and curiosity in the activities, which are hallmarks of inquiry-based learning in preschool (Ramanathan, Carter, and Wenner 2021). Supporting curiosity is fundamental to motivating children's learning and is easily recognized as bodily curiosity, as children explore with all their senses (Heggen and Lynngård 2021). In our data, this bodily eagerness to find and touch earthworms, smell flowers, and taste the flavors of the cordials was encouraged by the teachers. The teachers facilitated an opportunity for first-hand experience with real growing things that nurture and are easy to like (sweet cordials and potato chips), which we believe have a different status for the children than playing with toys or 'just' explore nature freely. The teachers' choice of activity, taking the lead in these activities, drawing a treasure map, and creating excitement for a treasure hunt (where can it be found, how many, how big, what taste, etc.) were significant. This is in line with the literature on 'adventures learning' (Beames and Brown 2016) and 'wild pedagogy' (Jickling et al. 2018), which challenges the regime of control in teaching and relies more on spontaneity and risk in meeting the unknown. The teachers did not know what to expect, yet they went into an adventure that had a risk of failure. The qualities of a self-reliant teacher who dares to take this risk seem to lie in the support from fellow kindergarten teachers, the staff, and external experts—that is, the 'community of practice' (Bergan et al. 2021). The kindergarten in our study has established a tradition of gardening and harvesting for several years, which may have influenced the teachers' courage to expand their repertoire of activities.

The second research question we posed was: *How does the kindergarten teacher inspire and catch the children's attention?* The teachers executed highly developed skills on CCC and attracted the children's attention mostly by recalling previous events, asking open or leading questions, and inviting the children to participate (Table 5). It seems that the teachers were continuously aware of the children's limited sense of time, and thus tried to connect events forward and back in time. Planning a goal of, for example, making the floral cordial with the children involved several steps (Table 3), and the teachers communicated this to the children by recalling, repeating, and reminding them of previous experiences, what to do now, and the aim ahead. By holding the tread through CCC, the teachers helped the children contribute willingly, especially when the activities were held outdoors (Table 3). This is interesting but may reflect how the outdoors is perceived as a more interesting arena for the children to be engaged in by their teachers. Hence, the outdoor activity itself seems to be perceived as engaging for the children, since it involves a mission, the use of different harvesting tools, and free exploration with the support of the teacher.

Another function the teachers provided that fostered engagement was leadership for 'building collective knowledge and skills' for everyone involved, both children and staff. This was expected from previous research (Bergan et al. 2021), but the recent data are more robust on how this was articulated by the teachers through CCC (Table 5) and staff leadership. We observed several elements of LOPI in the videos, which involved the teacher guiding or supporting the learner in a socially organized endeavor with the goal of contribution (Rogoff 2014). The teachers specifically guided the children's attention by pointing out what to harvest and what to leave, which is also described as a feature of LOPI (Rogoff 2014) and as an 'education of attention' (Ingold 2000). The building of knowledge and skills was happening along the way of experiencing for all learners – but the teachers took the responsibility for adding on to the collective competence on behalf of the staff and children. This is an example of what Ardoin and Heimlich (2021) calls an environment learningscape framework, where meaningful learning activities in rich environments happens along a line of everyday life. The teachers are agents for what kind of activities, especially outdoor environmental educational activities, are scheduled and executed throughout the year.

5. Conclusion and implications for children's eco-citizenship

Foraging and gardening will not happen in kindergarten without teachers who have the knowledge and skills for these kinds of eco-friendly practices. Having competence is not enough; teachers need to have personal engagement, self-reliance, and agency to set these activities into practice. In addition, they must be conscious of how they communicate with the children during the activities to support the children's curiosity, engagement, and learning in the process. Harvesting activities in the natural environment that have the purpose of producing a tasty product teach children the origin of food and the interconnectedness of nature. Children who experience such adventurous and purposeful activities led by competent teachers on a regular basis are more likely to value these eco-friendly habits throughout their lives, and they may also appreciate their local environment and advocate to protect it from exploitation. We believe that foraging and gardening early in life connects the children to the more-than-human world and foster children's development in becoming eco-citizens who care for the natural environment (Heggen et al. 2019). The children's ongoing and repeated connection to nature in these activities, are likely to impact their sustainable actions and even happiness (Barrera-Hernández et al. 2020). In this respect, the teacher is pivotal as a role model for implementing authentic practices that have relevance for environmental, social, and cultural sustainability (Bergan 2019; Bergan et al. 2021). The teachers' decisions on what kinds of activities are pursued outdoors in kindergarten affect the children's opportunity to build habits and agency as eco-citizens. Local knowledge on how to produce and harvest food is relevant in a future threatened by climate crises and restricted global trade. In this sense, the kindergarten teacher can make a huge difference for the youngest generation in terms of sustainability. Further studies are needed to address how children pursue and exert their eco-citizenship later in life after attending gardening and foraging activities in kindergarten.

Note

1. Geitrams is Norwegian for Rosebay willowherb and starts with the word "geit," which is "goat" in English.

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Traces of Sustainability in Food Practices in a Norwegian Kindergarten

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Abstract

Food and meals in early childhood education and care (ECEC) settings play a vital role in health promotion and sustainable development because they constitute a significant part of the children's total diet and considerably influence their eating habits and preferences. This paper aims to find and identify traces of sustainability in food practices in a Norwegian kindergarten by analyzing each of the four dimensions of sustainability relevant to ECEC: ecological, economic, and social/cultural sustainability, and good governance. Primary data sources for this paper include interviews with kindergarten staff, supplemented with non-participatory observation during mealtime. By looking into how this kindergarten integrated sustainability thinking into their practices and organizational structures—from designing a menu to managing a meal and incorporating children's voices in the process—this study shows that purposefully designed food provision may promote sustainability in ECEC. In addition, it draws our attention to how the kindergarten environment can serve as an arena for children to act as change agents for sustainable food practices in kindergarten settings and beyond.

Keywords: *foods and meals; sustainability; early childhood eduction and care; sustainable healthy diet; childern's agency; Norway*

Subject editor: Elin Kirsti Lie Reikerås

Introduction

This article presents a case study from the first author's PhD project on food policies and practices in Norwegian and Chinese kindergartens. The same data set has been used in a published article by the same authors (see Ciren et al., 2022). This current article take different stance in terms of research questions as well as results. The PhD project, which this research is part of, was funded by the Norges Forskningsråd, grant 275575.

Dietary practices can have substantial implications on sustainable development, due to its impact on the environment, individual and public health, and the economy (EAT-Lancet

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Commission, 2019). It is increasingly recognized that a sustainable world will require a global shift in values and practices in order to change our increasingly unsustainable patterns of consumption (UNICEF, 2013). A sustainable healthy diet is promoted in global guiding documents, such as the Food and Agriculture Organization of the United Nations and World Health Organization's *Sustainable Healthy Diets: Guiding Principles* (2019). Various research has shown that a dietary pattern higher in plant-based foods (e.g. vegetables, fruits, legumes, and whole grains) and lower in animal-based foods (e.g. meat, poultry, fish, eggs, and dairy foods) is both healthier and associated with a lesser impact on the environment (Clark et al., 2019; Hemler & Hu, 2019; Nelson et al., 2016; Sabate & Soret, 2014). In line with previous studies, a report that assessed the Norwegian dietary guidelines in a sustainable perspective by the National Council for Nutrition also concluded that a plant-based diet is more sustainable in the Norwegian context (National Council for Nutrition, 2017).

The issues of a sustainable healthy diet are particularly critical for children, whose future health is significantly affected by their current food and dietary practices. Early childhood is an important phase for developing eating habits and food preferences, and the dietary behaviors acquired during the early years of life can extend to adulthood (De Cosmi et al., 2017; Nekitsing et al., 2018; Ventura & Worobey, 2013). A large body of evidence has shown that early childhood development lays the foundation for lifelong health and well-being (Britto et al., 2017; Center on the Developing Child at Harvard University, 2010; World Health Organization, 2018). What happens to children during these early childhood years can influence their lifetime, their future children and society as a whole (Clark et al., 2020).

During the last decades, early childhood education has emerged as an important actor for sustainable development (Davis, 2010; Samuelsson & Kaga, 2008), particularly "in equipping children as active and informed citizens now and in the future and who are capable of contributing to healthy and sustainable ways of living" (Davis, 2010, p. 1). With the implementation of the UN Convention on the Rights of the Child (UNCRC) (United Nations, 1989), the past decades have seen a growing recognition in Norway and internationally regarding children's rights to participate in all matters that affect their lives (Bae, 2010; Sargeant, 2018). A call for voice-inclusive practice for sustainability is advocated, also as a step towards the actualization of the convention in practice (Sargeant, 2018). Previous studies have highlighted children's influence on family food purchasing and consumption practices (Grønhøj & Gram, 2020; Nørgaard et al., 2007). Yet, their voices in food research outside the family and private sphere remain minimized. In this paper, we aim to identify traces of sustainability in the food practices in a Norwegian kindergarten by analyzing different dimensions of sustainability as described below, and we draw special attention to children's voices in the process.

The four dimensions of sustainability

It is customary to characterize sustainability in a typology comprising three pillars: environmental, economic, and social (or sociocultural) (Boström, 2012). Grindheim

et al. (2019) provide a conceptual perspective to a broader understanding of sustainability relevant to ECEC guided by including the fourth dimension of good governance suggested by United Nations (2013). The four dimensions are considered to overlap in respects (see Figure 1). The dimension of good governance, often referred to as the political dimension, is understood as the system that distributes power and accommodate diversity, subjectivity, and multiple perspectives (Grindheim et al., 2019). According to Grindheim et al., good governance is organized through rules, structures, and plans for the activities in the ECEC. Following the long Nordic tradition and pedagogical model, children's democratic involvement has been considered as one of the key elements of good governance. By including this political dimension, Grindheim et al. argue that "reflections regarding how to facilitate children's involvement in educational practices and cultures become of interest" (2019, p. 376). The term "sustainability" has its origin in ecological sciences, and this dimension has been one of the primary dimensions of sustainable development (Holden et al., 2014). This dimension involves the protection of ecosystems and the conservation of biological diversity. According to Grindheim et al. (2019), this dimension includes aspects from nature conservation education to environmental education relevant for ECEC. We intend to explore this dimension from a food-related perspective. For example, sustainable initiatives including using foods that are both healthier and associated with a lesser environmental impact. Social and cultural sustainability is characterized as an environment that ensures equity, safety, and social rights, as well as promoting a sense of community and a feeling of belonging in the context of ECEC (Grindheim et al., 2019). Education for economic sustainability is less developed of the dimensions in ECEC (Siraj-Blatchford & Pramling-Samuelsson, 2016). The economic dimension of sustainability concerns "the financial approach to resources where economic development affects humans and/or the environment in a positive way" (Hedefalk et al., 2015, p. 979). While acknowledging the individual level learning about economy, consumption and value as suggested by Grindheim et al. (2019), we focus on the institutional level financial management and budgeting in our study, and how this affect the sustainability of the everyday practices.

The concept of agency is brought about by the paradigmatic shift of the "new sociology of childhood." We follow the traditional discourse regarding children as competent social agents who participate in knowledge construction and are capable of making sense of and affecting the social worlds around them (Corsaro, 2017; James et al., 1998). Children's agency is often analyzed within or as part of social and cultural sustainability (Bergan et al., 2021; Borg & Gericke, 2021). Grindheim et al. (2019) identified the overlapping area as when real-life activities, such as activities, playing in nature, learning about nature, gardening and so forth relate to the four dimensions of sustainability. According to their conceptualization, ways of facilitating these real-life activities become highly relevant in making room for agents of change, especially children as active agents of change for greater sustainability.



Figure 1. The four dimensions of sustainability (Grindheim et al., 2019)

Background and research context

In Norway, 93.4 percent of children aged between 1 and 5 years attend kindergarten (Statistics Norway, 2023). Children usually eat three meals daily in kindergartens. Typically, breakfast is brought from home by the children, while lunch and afternoon snacks are served by the kindergartens (Norwegian Directorate of Health, 2012). Although the practices vary in different kindergartens, especially between public and private kindergartens, in general, it is common for kindergartens to serve cold open sandwiches with toppings for lunch. According to a report from the Consumer Authority and The Norwegian Diet and Nutrition Association (2018), 37 percent of the Norwegian kindergartens served hot food twice a week or more often. The *National Guideline for Food and Meals in Kindergartens* provide knowledge-based recommendations (Norwegian Directorate of Health, 2018) for kindergartens on meal planning. Most Norwegian kindergartens do not have chefs or kitchen assistants, and the kindergarten staff usually prepare the meals.

In Norwegian ECEC, sustainability has been addressed explicitly in the curriculum framework (Weldemariam et al., 2017). *The Framework Plan for Kindergartens* states that, "kindergartens shall promote democracy, diversity and mutual respect, equality, sustainable development, life skills and good health" (p. 7), and further: "Kindergartens play an important role in promoting values, attitudes and practices for more sustainable communities" (Ministry of Education, 2017, p. 10). Besides, environmental concerns are particularly explicitly pointed out in the *National Guideline for Food and Meals in the Kindergartens*, which states that "kindergarten should have an environmentally friendly practice with little food waste and a food offering where plant-based foods and fish and seafood are central" (Norwegian Directorate of Health, 2018, p. 39).

Few studies to date have explored the extent to which Norwegian kindergartens integrate sustainability into their daily food practices (e.g. by providing food with lower environmental impacts or by offering opportunities to include children's voices). The present study therefore reports findings from a case study where a change of lunch practices from traditional cold sandwich meals to hot meals occurred, and emerged in response to the need for investigating traces of sustainability in their daily food practices by analyzing each of the dimensions of sustainability: ecological, economic and sociocultural, and good governance. The objectives of the present study were to explore how this case kindergarten of interest has embedded sustainability into their practices and organizational structures and inspire kindergarten-based actions towards promoting sustainable food practices.

Materials and methods

Research design

A case study methodology (Stake, 2005) was adopted because it allows an in-depth, multifaceted understanding of a complex issue in a particular real-world context (Crowe et al., 2011; Grauer, 2012). A qualitative case study approach enabled our purpose of understanding how the case kindergarten of interest embedded and incorporated ideas of sustainability in the change of lunch practices.

Research site and participants

This study was carried out in a public kindergarten in a large city in Norway. The kindergarten is in a neighborhood of households with modest (and higher) incomes. Most of the children are ethnic Norwegians. Children brought their own breakfast from home and ate together in the kindergarten. Lunch was provided in the kindergarten, and the afternoon snacks were usually yogurt (brought from home) with some fresh fruit cuts served in the kindergarten. This article presents a case study of a larger project on lunch practices in a cross-cultural context. Data were collected from the Blueberry and the Cranberry department with children aged from 3 to 5. In each department, there were around 18 children with 3 adults (1 pedagogical leader, 1 teacher and 1 assistant teacher). Study participants for interviews included six kindergarten staff members (see participants list in Table 1). The same data has been used in a published article by Ciren et al., (2022). After the sentence "This article presents a case study of a larger project on lunch practices in a cross-cultural context.

Data collection

This study's major data sources are interviews with kindergarten staff supplemented by non-participatory observational data. In total, six semi-structured interviews with kindergarten staff that lasted from 45 to 80 minutes were conducted in the kindergarten in

Table 1. Participants' demographic data

Participant	Position	Years of experience	Gender
Blueberry department			
Participant 1	Apprentice	1	Female
Participant 2	Pedagogical leader	13	Female
Cranberry department			
Participant 3	Assistant	8	Female
Participant 4	Pedagogical leader	8	Female
Participant 5	Headteacher	20+	Female
Participant 6	Chef	16 years as a restaurant chef 1 year in this kindergarten	Male

February 2020. The headteacher, the chef and the two pedagogical leaders were invited for interviews as key informants, while the other interviewees were recommended by their pedagogical leaders. The interviewees chose a time that was convenient for them. The interviews were based on a list of guiding questions with an open-ended structure and follow-up questions. The interview guide consisted of themes concerning lunch meal organization, lunch practices, and children's food consumption. The design of the questions was adapted further as the research proceeded, after two or three interviews, more probing questions regarding the thinking and rationale behind the practices were asked. All the interview data were audio-recorded. In addition, non-participatory observations for a week were conducted during the same period. Observation protocols were designed prior to the fieldwork and filled during the observation. The observation protocol includes three main parts: (1) the details of the dining environment; (2) mealtime organization and children's eating behaviors; and (3) mealtime socialization/ interaction. The observational data on mealtime organization, especially before and during mealtime activities, and children's consumption of the "new" foods and their mealtime interaction, were included for the purpose of this paper to supplement the interview data.

Data analysis

All interviews were transcribed verbatim. The interview data were analyzed deductively from the four dimensions of sustainability conceptualized by Grindheim et al. (2019), and inductively from the findings with new code emerged (Braun & Clarke, 2006). For the observational data analysis, we opted for a deductive-inductive approach where we began with a deductive coding system with the set of themes derived from the interview data, based on the aim of the research, and inductively with new codes emerged. The analysis of the observational data was conducted to validate and supplement the interview data and to help illuminate findings.

Ethical considerations

The research project was approved by Norwegian Centre for Research Data. Written consents were obtained from all the staff included in the study. In addition, written consents

for observation from children's parents and written/oral consents from everyone present during the observation was obtained.

Findings

With reference to the different dimensions of sustainability conceptualized by Grindheim et al. (2019), findings are presented as follows: (1) A goal-oriented action and an arena for participation; (2) Environmental considerations in menu development and waste management; (3) Economical and efficient budgeting and financial management; (4) Careful planning for sociocultural equality, relationships and well-being; (5) Children's agency for sustainable changes.

A goal-oriented action and an arena for participation

All the participants believed that the kindergarten should be an important arena for health promotion and acknowledged that the kindergarten played a vital role in providing healthy food for children. They perceived the hot lunch provided at their kindergarten as both healthy and tasty. The chef, who takes primary responsibility in food-related decision-making and food provision, shared his beliefs of healthy food and adequate nutrition as children's rights. In the interviews, the chef stated multiple times that, "I think that a healthy meal is supposed to be given to the children."

In addition, the participants talked about children's participation in the meal, both in the decision-making and the mealtime. A "mailbox" to the chef, where the children could suggest their favorite foods, either drawn by themselves or written down for them by their teachers, was made and attached outside the kitchen. As such, children can participate in the decision-making of the foods served to them. And children's voices are taken seriously, as one of the teachers shared: "Some dishes are replaced, and some stay on the menu, like the lasagna, children love it, and they wrote to the chef about it, so it is kept on the menu" (Participant 2).

According to the teacher, involving children as active participants in the process promotes the likelihood that they would accept the food provided to them, which sustains this engagement of children in the kindergarten.

Environmental considerations in menu development and waste reducing

The kindergarten in this case developed a menu based on odd and even week numbers (see Table 2): two dishes in the weekly menu were changed every two months. In general, they have soups served on Mondays, vegetarian dishes on Tuesdays, fish on Wednesdays, bread on Thursdays for children to bring along on outdoor trips, and children's favorite oatmeal

Table 2. Menu in the kindergarten

Weeks	Monday	Tuesday	Wednesday	Thursday	Friday
Odd weeks	Tomato soup with whole-grain rolls	Pasta with tomato sauce	*Plukkfisk* (a traditional Norwegian fish dish)	Bread slices with toppings, eggs and milk	Oatmeal with homemade berry sauce
Even weeks	Potato soup with whole-grain rolls	Vegetable lasagna	*Fiskegrateng* (baked fish casserole) with cooked carrots	Bread slices with toppings, eggs and milk	Oatmeal with cinnamon, raisins and sugar

on Fridays. In the interviews, all staff in the kindergarten similarly stated that the goal of such a menu is to serve a healthy and varied diet to the children.

In the kindergarten, a meatless Tuesday was set. The chef advocated reducing meat consumption, especially red meat. He problematized the current food consumption pattern in society and highlighted the health benefits of eating vegetables.

> We as humans eat a lot more meat than we need in general. And if we buy ground meat, they use a lot of water producing it … and there's a lot of salt in it, and we eat a lot more salt than we need, it is not healthy … We need to provide more vegetables to children. (Participant 6)

During our observations, we noticed that the food served in the kindergarten was according to the menus they had developed, with modest amounts of fish and meat. According to the teachers and the chef, instead of ordering from the grocery shops, they make their own bread and jam using fresh berries thus reducing processed and pre-packaged foods. This was also confirmed during our observation in the kindergarten, in which most of their food was freshly prepared.

Reducing food waste

In the kindergarten, the teachers noted that by distributing food to the children, they were able to reduce food waste. Leftovers can be stored in the fridge and served to the children who have a different, difficult time with the meal of the day, or for the adults in the kindergarten.

As per our observations, during mealtimes, teachers served a portion they think is appropriate for the children, based on their experiences. Once the children finish the food on their plates, the teacher would ask them if they wanted another serving, and then serve those who wanted more. According to the teachers, by serving children with appropriate portion sizes, they reduce food waste in the kindergarten also while ensuring that the children received enough food.

The teachers emphasized that it is bad to throw away food. By extending mealtime, the amount of food waste from the children's plates could be reduced. The guidelines for food and meals in kindergartens recommend allocating a minimum of 30 minutes for children to eat. In the kindergarten, an average of forty minutes is set for lunch. Besides, the

kindergarten also extended the time for meals for those who took longer to eat to ensure everyone had enough time to eat and finish.

Economical and efficient budgeting and financial management

The headteacher shared the importance of budgeting and financial management, healthy meal planning and targeting available money effectively. The headteacher further explained that although they had a limited budget, with better planning, they could sustain a healthy diet: "We have limited budget, but our chef is very economical. I think the food we make is of very good quality. And it stays within the budget … I don't see that as a challenge, our budget is enough" (Participant 5).

In the interview, the chef said that compared to other kindergartens, they were economical and efficient, both time- and money-wise: "We don't use any more money for food than other kindergartens; and don't use more time necessarily providing it. I take care of everything in the kitchen, so teachers have more time to be with the kids" (Participant 6).

In addition, the chef shared that by reducing the intake of red meat, they could afford better fish when they served fish meals.

> As for the meatless Tuesday, it is also cheaper … Therefore, if we don't spend money on meat on daily basis, we can have better meat when we eat meat. So, the fish we use, for instance, is not the cheap fish we can use. It is the best fish we can use. (Participant 6)

Careful planning for sociocultural equality, relationships and well-being

The value of social equality is clearly expressed by our participants. They mentioned that a healthy meal is "supposed to be given to each child." And they talked about how the cooked meal they provide in their kindergartens can contribute to level out the differences through food. One of the participants said that "For some low-income families, they know that if they are not able to provide good breakfast, the children would at least get good lunch in the kindergarten" (Participant 1).

As she said, for some children, the lunch meal is the "good meal" they receive during the day, implying that it guarantees a basic level of nutrition no matter what is served at home for those from economically disadvantaged families. In this regard, the meal provides opportunities for tackling social inequality. This is confirmed by other participants, such as this teacher: "It is very important that all children get the same offer. At home, there are many differences, some eat very good food, but some don't." (Participant 2).

The teacher explained that the meals children consumed at home regarding nutritional quality varies. Different individual factors and family food environments affect the meals offered at home. The teacher further explained that many families rely on (semi-) convenient meal ingredients than cooking from scratch with an example of making tomato soup with soup mix powder instead of fresh tomatoes in some of the children's households.

According to her, the lunch meal provided at the kindergarten helps to reduce such diet disparities children experienced at home.

In addition, the teachers explicitly talked about the importance of creating an environment for children to establish skills for accepting new things for later social life that children will need. The teachers were concerned that most children were used to the traditional Norwegian bread lunch and were not exposed to many different food types at home. More importantly, the teachers believed that food acceptance in early life has long-lasting implications, while not being exposed to many foods may lead to a restriction of children's social life and well-being.

> I think it is good for children that they can eat different food. It is good for them when they are getting older, like go to birthdays with friends, that they feel safe that they can eat the food served there … It is good for them to have the experiences early from the kindergartens to like every meal that served them and help them get an easier everyday life. (Participant 2)

According to the teacher, exposing children early to various foods provides them a balanced and nutritious diet while also equipping them with the necessary skills to engage and participate in social life later. In addition, the teachers shared that the importance of developing a healthy relationship with food early in life: "To give children early a good relationship to what they eat and to create a positive setting where we can have a good talk and enjoy the food together is important" (Participant 5).

Besides developing a good relationship with food, the teachers also shared that encouraging the children to show gratitude towards those who prepared the food for them is important in order to help the children develop a good relationship with food.

> Before the meal in the get together by the wardrobe, we always say to the children that the chef has prepared these foods for us today … and during the meal, we also say to them that it is very nice that the chef always prepared good food for us. (Participant 4)

According to the teachers, one of the ways to promote the children's healthy relationships with food is to connect children to what they are eating and the people who prepare the food. This was confirmed by our observation notes. We observed that the teacher sometimes mentioned that the chef was so good at preparing healthy food for the children during mealtimes in the Cranberry department.

Children's agency for sustainable change

The teachers in our study expressed that children make their contribution to the new meal situation. According to the teachers, accepting new and unfamiliar foods was difficult for children in the beginning, especially younger ones. Through peer modelling, the older

children in the group acted on their behalf and serve as role models for the younger children in the same group. According to the teacher, the older children in the group positively influenced younger children's eating behaviors, and thus contributed to the meal situation by accepting and consuming new foods.

> Some children are like "we don't want to try this," but when they eat with other children, they seem very glad, saying, "Maybe I should be like them …" I think the 5-year-olds are very good at trying things, and they tell the 3-year-olds to taste it, it is very good. When I do it, they will be like you are an adult, and you do everything, but when 5-year-olds tell them that to taste it, they do it because they think they are big and very smart. (Participant 4)

As per our observation, children in the 3–5-year age range were mixed at the table where they engaged with each other, with the younger children observing and sometimes imitating the older ones. Moreover, observation data indicated that children contributed to the social setting by co-creating and engaging in a relaxing and happy atmosphere before, during and after mealtime. It is observed that sometimes children did small chores, such as pushing the food trolley from the kitchen to their department before the meal, and participated in routine activities, such as counting and singing. During mealtime, the children initiated different topics and talked to each other and in the group freely. When the teacher-initiated discussions regarding other topics such as weather and food, the children participated in the conversation. After the meal, all the children took their own utensils out and stacked their used plates back on the trolley.

It appears that children had a large say in how the mealtime should be in the kindergarten. It was observed that children always engaged their senses to touch and taste the food. In one of the meals, children initiated a game of "guess what's in my hand" and touched the food with their hands and played with their fingers. Using this strategy, children exercised their agency in controlling how they ate.

The children were able to not only practice their agency in kindergarten, but also seemed to exercise their agency at home. According to the teachers, they talked about healthy food in the kindergarten with the children, and the children were interested in such knowledge. Children brought the message they received from the kindergarten back home and requested their parents to prepare healthier food options for them.

> There was one day, one parent picks up the child and said that today we are having pizza for dinner, the child was like pizza is not good for me, and he said it is not so good to eat pizza, maybe we can have fish instead, and the parent was like you like pizza, and he said, I like pizza, but I cannot eat it every time. (Participant 4)

Furthermore, a teacher shared how the children are empowered and can exercise their agency in family food-related decisions based on the discussions over healthy food in the kindergarten. She shared:

> We talk a lot about food here in the kindergarten, about what is healthy, what is not, what we should eat more often, and what we should eat less often. The children remember a lot, and they take the message with them, and they tell their parents. And so maybe if the parents wanted some chocolate on Monday or Wednesday, they may stop that. (Participant 1)

Discussion

By analyzing each of the four dimensions of sustainability relevant to ECEC conceptualized by Grindheim et al. (2019), the findings of this study indicate that the case kindergarten has incorporated the four dimensions in their food practices. The four dimensions include (1) a good governance prioritizing children's rights to nutritious and healthy food, and emphasizing a participatory orientation toward a sustainable change; (2) an ecological pondering upon menu designing and reducing food waste; (3) an economic consideration on feasibility and sustainability; and (4) a sociocultural contemplation of equality, relationships and well-being. Although the dietary practices of providing a hot lunch in the kindergarten are not representative, we argue that this case study can serve as an example of how kindergartens can engage sustainable practices in food provision and facilitate the meal practices as an arena for children to act as change agents, by looking into how it has embedded sustainability throughout its carefully designed meal practices from designing a menu to managing a meal by incorporating children in the process. The findings suggest that the foundations for good governance in this kindergarten are the apparent interests and values for children's equal rights, health, and participation. The orientation towards such values contributed to the planning and organization of the kindergarten's food practices. While acknowledging that the personal beliefs of the headteacher and the chef were important drivers for the sustainable food practices in the kindergarten, we highlight the institutional level efforts that conditioned all parties involved to be able to act on the values that they hold. By giving room for participation and new ways of thinking, as pointed by Grindheim et al. (2019), the system changes, rather than the individual teacher or child.

The findings of our study suggest that the case kindergarten carefully considered ecological dimension of sustainability in their food practices. The design of the kindergarten menu corresponds to the strategies set out by EAT-Lancet Commission guidance for the necessary shift towards a sustainable diet, with more plant-based and fewer animal-sourced foods (EAT-Lancet Commission, 2019). The design is also in line with the recommendation from the *National Guideline for Food and Meals in Kindergartens* (Norwegian Directorate of Health, 2018), which recommends that kindergartens should have an environmentally friendly practice where plant-based foods, fish and seafood are central components. As indicated by previous research, some food practices, such as introducing appropriate portion sizes for children (Kairey et al., 2018), may increase food intake and enable children

to eat more healthily. In addition, the case kindergarten has reduced food waste with such practices of serving appropriate portion sizes, which is in line with the strategies recommended by other studies to reduce food waste and promote the achievement of healthy and sustainable eating patterns (Boschini et al., 2020; Steen et al., 2018). By incorporating such practices, this kindergarten has facilitated its food practice in a more environmentally sustainable way, which may also inspire other kindergartens to shift towards a more ecologically sustainable form of food provision.

As shown in the findings, this case kindergarten of interest has illustrated how they engaged in the economic sustainability by budgeting and planning for their daily food practices, which also adds some nuances to our knowledge of the role of economy in kindergarten food and meals. A report from the Directory of Health showed that the economy was one of the factors that headteachers believed played the most significant role in the foods and drinks offered in kindergartens (Norwegian Direcorate of Health, 2012). In addition, another study indicated that the economic environment in kindergartens positively associated with the vegetables served in the kindergartens (Himberg-Sundet et al., 2018). However, our study shows that with better budget planning, kindergartens could serve healthy and sustainable meals with reasonable and limited economic resources, without increasing additional food payment, and thereby avoiding rising inequality in the long run in society. That is to say, the kindergartens' financial position was not necessarily a restricting factor for a sustainable healthy food provision. Instead, we highlight such practices as budgeting and financial management, which significantly influence the quality of food they supply and, therefore, contribute to the sustainability of their food practices.

In line with other studies where meals in public institutions are identified as an arena for health promotion as well as a way to achieve social equality (Höijer et al., 2020; Illøkken et al., 2021), our study confirmed that food practices in kindergartens could contribute to the sociocultural sustainably through food in ECEC. Building on the evidence that children's eating patterns and food preferences are established early in life (Birch & Fisher, 1998), and seeing as many eating behaviors (such as food variety and intake) are consistent over time (Nicklaus & Remy, 2013), the findings of our study suggest that kindergarten has the potential to facilitate an environment that helps children to develop long-lasting habits and skills, as well as good relationship with food. In addition, as an important sociocultural arena, kindergarten can contribute to leveling out social differences through food and support children's social well-being that can strengthen their social capital.

Finally, children's agency has been respected, recognized and practiced in the process, and as indicated in the findings, children themselves act as agents for sustainable change in their kindergarten. Children's voices are complex and are constantly constrained and shaped by the adult's decisions on what children have access to. In this article, we highlighted children's voices in the decision-making of the menu, and their contribution to the new meal situation, both to the actual food consumption through positive peer modeling

(Salvy et al., 2012) and the co-creation of the social setting. A call to action to put children at the center of sustainable development was proposed by UNICEF, and it advocates empowering children to exercise their right to be heard and thereby "make sustainable choices and become effective future guardians of a sustainable world" (UNICEF, 2013, p. 14). In this kindergarten, the mailbox was an effective way to listen to children and support them to voice their viewpoints. Using this child-friendly technique, this kindergarten promotes children's participation and thus creates an arena for communication and engagement that gives more agency to children as active participants in the process. This collaborative relationship empowers the children and shapes the agenda of the changing practices. In addition, the mailbox was complemented with the teachers' direct observation of children's consumption of the food in order to listen to children's voices. As such, they make sure even the less active children's voices that were passively expressed were also heard.

While acknowledging that our findings are derived from shared normative cultural values and discourses around food and health in the society which shape the framework for what the teachers consider as good practices, we argue that by promoting children's agency through participation and creating a collaborative partnership, such purposefully designed food provision in the case kindergarten could promote sustainability. Our study shows that by giving children spaces for exploring and engaging with food, they are able to exercise their agency and power over how their mealtime should be, as well as playfully participating in the formation of their food consumption pattern and thus their own sustainable development as agentic individuals. This study also found that children could exercise their agency to create change in the family meal at home, and thereby act as change agents.

Final remark

As proposed by Davis and Cooke, education and schooling need to be positive contributors to sustainability, rather than "social forces that perpetuate unhealthy and unsustainable ways of living" (Davis & Cooke, 2007, p. 352). Despite the limitations, the findings of this study may provide useful implications. First, this study shows that by changing some routine practices, kindergartens can integrate sustainability in their daily food provision and thereby promote a change and a shift towards a more sustainable, healthier, and still affordable eating style. Second, this study highlights that kindergartens can develop child-friendly ways of listening to children, facilitating their participation in decision-making concerning their life in kindergarten, as well as supporting them to serve as change agents for sustainable practices. Third, for the kindergarten to purposely design and carry out such practices, we suggest that early childhood teacher education programs incorporate elements that cultivate kindergarten teachers' competence in integrating different dimensions of sustainability and supporting children's active participation in their daily practices

in the different courses offered to future and present kindergarten teachers. Finally, we believe this study can be an inspiration for future research on designing context-specific interventions to promote sustainability in the ECEC context and beyond.

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Brettspel som tilrettelegging for utdanning for berekraftig utvikling i barnehagen

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Samandrag

Det er aukande etterspurnad etter kunnskap om korleis ein kan leggje til rette for utdanning for berekraftig utvikling i barnehagen. Vi vil bidra med utvikling av leikande praksisar, avgrensa til deltaking i brettspel, sidan leiken er sett som barn sin måte å vere i verda og som ei transformativ kraft. Problemstillinga er: Kva innspel har barnehagelærarstudentar og barnehagelærarar til bruk av brettspel som utdanning for berekraftig utvikling i barnehagen? Materiale er henta frå to verkstadar; ein med studentar og ein med barnehagelærarar, og byggjer på eit fyrsteutkast av eit brettspel laga for vaksne. Observasjonar frå verkstadane og deltakarane sine forslag til korleis spelet kan utviklast for å vere relevant for barnehagebarn, er analysert ut frå ei teoretisk forståing av leikbasert utdanning for berekraftig utvikling. Analysen viser overlapping mellom økologiske, økonomiske, sosiale og kulturelle tilnærmingar til berekraft og berekraftig styresett, og dei leikande elementa er med i alle forslaga til brettspelet. Etter at form og innhald i spelet er vidareutvikla ut frå funna våre, vil vi prøve ut spelet saman med barn.

Nøkkelord: *barnehage; brettspel; leik; utdanning for berekraftig utvikling; verkstad*

Abstract

Using board games to facilitate education for sustainable development in Early Childhood Education and Care (ECEC)

There is a growing need for knowledge on how to facilitate education for sustainable development in Early Childhood Education and Care (ECEC). Since play is considered children's way of being in the world, and as a transformative force, we aim to investigate what should be taken into consideration when facilitating playing practices. In our study, the practices are manifested as a board game. The paper is organised around the research question: What suggestions do ECEC teacher students and teachers in ECEC institutions forward to develop a boardgame for education for sustainable development in ECEC? Material for analysis is based on two workshops: one with students and one with teachers and contains observations from the workshops and suggestions for how a boardgame for adults could be changed to be relevant for young children. The material is analysed based on theorised characteristics of play and education for sustainable development. The analysis reveals that the suggestions for revisions of the boardgame embrace play and reflect ecologic, economic, social, and cultural approaches to sustainability, together with sustainable governance.

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The form and content of the board game will be revised based on these results, and then be tested together with children.

Keywords: *boardgame; Early Childhood Education and Care; education for sustainable development; play; workshop*

Gjesteredaktører: Hege Wergedahl og Aihua Hu

Innleiing

Det er aukande etterspurnad etter kunnskap om korleis ein kan leggje til rette for utdanning for berekraftig utvikling i barnehagen (Elliot et al., 2020). Bascope et al. (2019) viser til tre typar av praksisar som blir rekna som tenlege: kunstbaserte, utandørs-baserte og prosjekt-problem-baserte tilnærmingar. Det er også fleire som er engasjerte i leik og spel som meiningsfullt og relevant i utdanning for berekraftig utvikling i barnehagen. Bubikova-Moan et al. (2019) finn at leik-basert læring skaper stor interesse og engasjement og Caiman og Lundegård (2014) viser til leik som eit prioritert aspekt av utdanning for berekraftig utvikling.

Til tross for at leik trer fram som eit prioritert aspekt, er det færre som skriv om leik som utdanning for berekraftig utvikling, til tross for at leiken blir forstått både som barn sin måte å vere i verda på (Løkken, 2000) og som ei transformativ kraft (Stuhmcke, 2015). Som Davis og Davis (2020) har vi som mål at utdanninga for berekraftig utvikling i barnehagen skal vere prega av transformative, myndiggjerande og deltakande tilnærmingar til berekraftspørsmål; ei tilnærming der barn tileignar seg kunnskap, verdiar og motivasjon. For at barn kan tileigne seg kunnskap, verdiar og motivasjon må aktivitetane borna blir ein del av vere ankra i erfaringane deira (Sterling, 2010; Wals, 2012). Kreativitet og leik er naudsynte dimensjonar i slike læringsprosessar (Samuelsson & Park, 2017). Vi avgrensar leikande praksisar til speling av brettspel; ei leikeform med lange historiske tradisjonar, og som er engasjerande for både barn og vaksne (Sutton-Smith, 1986), men som vi finn lite av i forsking om utdanning for berekraftig utvikling i barnehagen.

Det finst fleire spel og materiale – særleg for eldre barn – som blir annonsert som berekraftige (Hallinger et al., 2020). Slike spel er sjeldan utvikla ut frå eit spesifikt og forskingsbasert rammeverk til utdanning for berekraftig utvikling i barnehagekontekst. Vi byggjer på eit slikt teoretisk rammeverk, samtidig som vi meiner at utvikling av meir kunnskap om korleis ein kan leggje til rette for relevante og meiningsfulle praksisar, treng samarbeid mellom ulike disiplinar, ulike kompetansar og ulike menneske (Grindheim et al., 2021; Klein, 2015). Vi ser barnehagelærarstudentar og barnehagepersonale som sentrale for å utvide og utvikle kunnskap om leikbasert tilnærming til utdanning for berekraftig utvikling, og disponerer artikkelen ved hjelp av problemstillinga: *Kva innspel har barnehagelærarstudentar og barnehagepersonale til bruk av brettspel som utdanning for berekraftig utvikling i barnehagen?* Innspela blir analysert i lys av eit teoretisk rammeverk som skildrar kjenneteikn ved leikbasert utdanning for berekraftig utvikling. Målet er å skape eit forskingsbasert

grunnlag for å kunne utforme reglar, spørsmål, oppgåver og form på eit brettspel som både svarar til erfaringane og kvardagen til borna, og til relevant forståing av utdanning for berekraftig utvikling. Neste steg i utvikling av brettspelet blir å prøve det ut saman med barn.

Brettspel i utdanningskontekstar

Om lag alle kulturar har spel (Bishop, 1988). Historisk har spel vore ein aktivitet for vaksne. Brettspel er eit ikkje-digitalt spel laga av eit brett, inndelt i soner, med tilhøyrande spelebrikker, og med reglar for korleis spelet skal spelast (Braadland, 2021). Brettspel blir ofte spelt som konkurranse i sosiale samanhengar (Sutton-Smith, 1986). Utvikling av brettspel for barn er karakteristisk for vestleg kultur og strekkjer seg tilbake til siste del av 1700-talet (Parlett, 1999). Spel kan vere kommersielle, underhaldande eller ha læringspotensial og læringsføremål (Connolly et al., 2012).

Forsking på bruk av brettspel i utdanningskontekstar handlar mest om utdanning for eldre barn. Det blir peika på at slike spel kan forsterke kunnskap og byggje bru mellom kunnskapselement ved å skape eit dynamisk, artig og spanande læringsmiljø (Royse & Newton, 2007). Brettspel har vist seg som motiverande undervisingsstrategiar (Akl et al., 2013; Partovi & Razavi, 2019). Spel kan kveikje motivasjon til å engasjere seg i lite attraktive aktivitetar som til dømes å lære teori (Laine & Lindberg, 2020). Ifylgje Alvarez (2017) kan det å spele spel knytast til utvikling av elevar si kritiske tenking, problemløysingskompetanse, munnlege og skriftlege kommunikasjonsferdigheiter og evne til å analysere informasjon, saman med kognitivt og affektivt læringsutbyte (Gatti et al., 2019).

I barnehagekontekst er brettspel ein mykje brukt aktivitet. Ut frå søk i forskingslitteratur om brettspel i ulike kontekstar (også i barnehagar), fag og aldersgrupper finn Bayeck (2020) at brettspel aukar motivasjon for læring og kan fremje endringar i tankar og åtferd. Vogt et al. (2018) undersøkte læringsutbytte i matematisk kompetanse hjå seksåringar gjennom ulike intervensjonar, og fann at læringsutbyttet var størst for den leikbaserte tilnærminga med kort og brettspel. Den leikbaserte spelande tilnærminga tok også best vare på borna sine ulike behov.

Når det gjeld spel som er laga til utdanning for berekraftig utvikling finn vi fleire for elevar i grunnskule og vidaregåande skule. Tsai et al. (2021) har brukt brettspel i undervising for berekraftig utvikling ved ein kinesisk vidaregåande skule. Ozenc (2020) presenterer eit strategisk brettspel for å undervise barn over åtte år om berekraftsmåla (FN-sambandet, 2023). FN har også laga eit brettspel kalla «Bærekraftsmål-brettspill» (https://go-goals.org/nb/). Spelet passer for barne- og mellomtrinnet og handlar om FN sine globale berekraftsmål.[1] Utdanningsrelevante spel for berekraftig utvikling er hovudsakleg retta mot høgare utdanning (Hallinger et al., 2020; Stanitsas et al., 2019).

1 Det finns digitale spel til utdanning for berekraftig utvikling for små barn, til dømes *My Green City*, som er anbefalt frå 3 år. Vi har utelatt digitale spel sidan fokuset vårt er brettspel.

Denne korte tilvisinga til det breie spel-feltet, viser at dikotomien mellom spel som underhaldning og spel som læring (Connolly et al., 2012) kan utfordrast. Det er særleg aktuelt i møte med barnehagebarn og deira leikande veren i verda. Vi finn ingen ikkje-digitale brettspel som er laga for å fasilitere utdanning for berekraftig utvikling i barnehagen, basert på eit forskingsbasert rammeverk for slik utdanning, ut frå brei teoretisk kunnskap om leik slik barnehagelærarstudentar skal ha, eller erfaring med barn og spel i barnehagekontekst slik barnehagelærarar har.

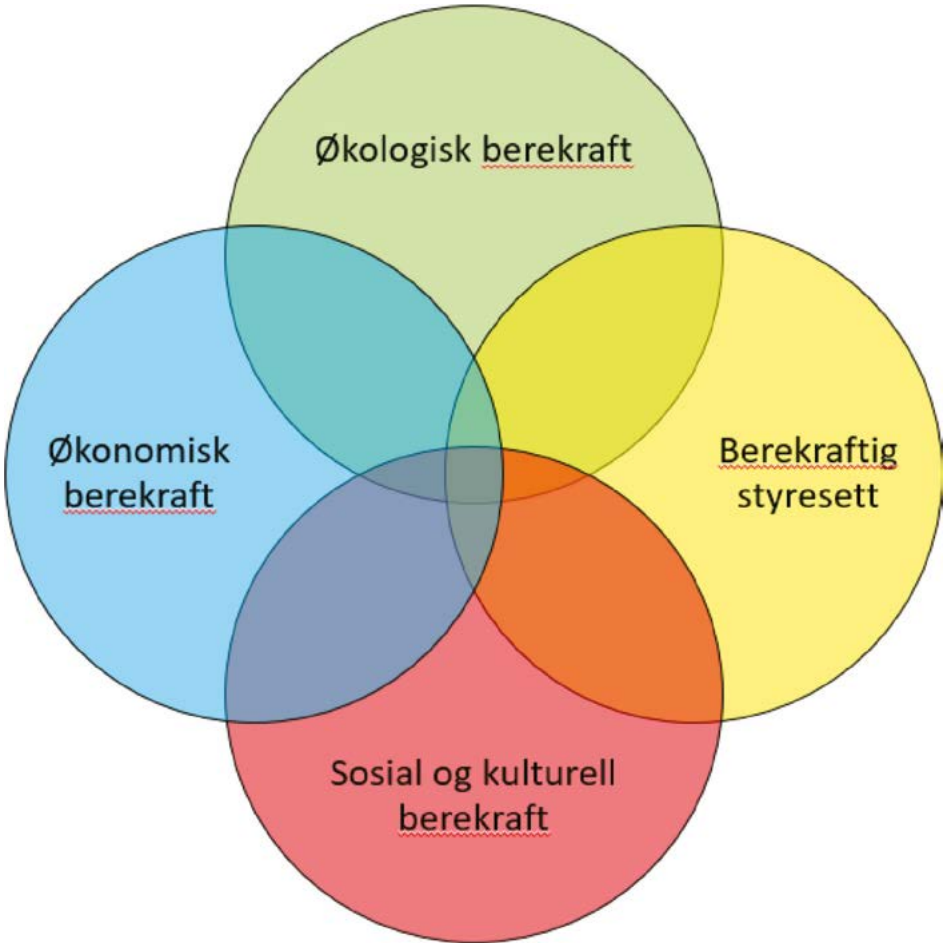
Teoretisk ramme

Den tradisjonelle forståinga av utdanning for berekraftig utvikling som økologisk forståing av berekraft (Heggen, 2016), er i endring. Dei siste tiåra er det tatt inn spørsmål om pedagogikk, stad og deltaking, om sosial rettferd og demokratisk utdanning (sjå til dømes Bergan & Bjørndal, 2019; Davis & Elliot, 2014; Grindheim et al., 2019; Hägglund & Johansson, 2014; Kasin, 2019; Sinnes, 2021). I vårt prosjekt gjeld det deltaking i brettspel, forstått som leik. Til tross for ulike og til dels motsette tilnærmingar til korleis ein skal forstå leik, er dei fleste leikforskarar samde om at leiken har nokre karakteristiske trekk: Leik er ein aktivitet som ein blir djupt involvert i, som eskalerer dess meir enn er involvert, som er sjølvmotiverande og speglar erfaringar frå dei involverte sine liv (Grindheim, 2017; Lillemyr, 2011; Schousboe, 1999). Desse karakteristiske trekka finn ein i alle typar av leik, alt frå individuell leik med kroppen til leik som avanserte spel. Vi ser materialet vårt i lys av desse karakteristiske trekka for å sjå om innspela frå barnehagelærarstudentane og barnehagelærarane kan bidra til å styrke leikande element i utvikling av spelet.

På lik linje med fleire som operasjonaliserer utdanning for berekraftig utvikling ser vi ei slik utdanning som for samansett til å kunne møtast av ein fagdisiplin åleine, og at det er utfordringar fleire fagdisiplinar må møte saman (Grindheim et al., 2019; Sinnes, 2021). Sinnes (2021, s. 71) har til dømes laga eit rammeverk for å planlegge og analysere undervisingsopplegg som har berekraftig utvikling i fokus, for skular. Rawort (2017) sin «smultringmodell» illustrerer planeten si tolegrense for menneskeleg aktivitet og viser til ei sone for å kunne leve økologisk trygge og sosiale rettvise liv. Rammeverket som vi ser innspela til barnehagelærarstudentane og barnehagelærarar i lys av, har mange samanfallande trekk ved desse tilnærmingane, som til dømes det tverrfaglege, det samansette og sårbarheita mellom naturressursar og menneskeleg forbruk.

Rammeverket vårt er bygd på forsking om utdanning for berekraftig utvikling i i barnehagen (Grindheim et al., 2019), der leik står sentralt. Det er også eit rammeverk som dei involverte barnehagelærarstudentane og barnehagelærarane kjente til. I tråd med Sachs (2013) og Unesco (2012) si tilnærming til berekraftig utvikling, byggjer vi vår forståing av utdanning for berekraftig utvikling på fire dimensjonar: økologisk berekraft, økonomisk berekraft, sosial og kulturell berekraft og berekraftig styresett (Grindheim et al., 2019; sjå figur 1). Sidan desse dimensjonane er gjensidig avhengig av kvarandre, er vi særleg

interesserte i aktivitetar med kjenneteikn som viser til alle fire dimensjonane, illustrert som det overlappande området i midten av figuren. Området i midten av figuren illustrerer korleis praksisar er situerte i lokale og globale utfordringar og er påverka av ulike sider ved samfunnet. Aktivitetar som viser korleis desse dimensjonane er til stades og overlappar kvarandre, er sett som optimale for å oppnå utdanning for berekraftig utvikling.



Figur 1. Visualisering av utdanning for berekraftig utvikling (henta frå Grindheim et al., 2019)

I analyse av innspela frå barnehagelærarstudentane og barnehagelærarane leitar vi etter kjenneteikn ved dei ulike dimensjonane.

Økologisk tilnærming til utdanning for berekraftig utvikling har tradisjonelt fokusert på å knytte borna tett til naturen (Heggen, 2016; Sageidet, 2015), gjennom å legge til rette for erfaringar med naturlege fenomen og samanhengar i naturen (Grindheim et al., 2019). I skandinavisk samanheng er slik tilknyting ofte blitt fremja gjennom barn sin leik i naturen (Hammer & He, 2016; Heggen et al., 2016, 2019). Det handlar om å etablere ei forståing for menneske sin avhengigheit av naturen (Næss, 2005), og å lære *i* verda heller enn *om* verda, gjerne som leik i naturen.

Sosial og kulturell tilnærming til utdanning for berekraftig utvikling kan sjåast som delar av same dimensjon. Sosial berekraft handlar om å oppnå tryggleik, sosiale rettar og gode levekår (Sachs, 2013) og kulturell berekraft handlar om å høyre til i eit lokalsamfunn, kjenne stoltheit og identitet, gjennom blant anna historie- og tradisjonsformidling, eigarskap til staden og ei kjensle av å vere ein del av eit felles «vi» (Birkeland, 2009; Horrigmo, 2014). Det handlar ofte om å gi rom for å høyre til og å delta i fellesskap som er situerte i spesifikke barnegrupper, barnehagar og lokalmiljø og kulturelle tradisjonar (Grindheim et al., 2019). Slike kulturelle tradisjonar kan vere manifestert gjennom leiketøy (Birkeland & Grindheim, 2021) som til dømes brettspel (Sutton-Smith, 1986).

Økonomisk tilnærming til utdanning for berekraftig utvikling blir vist til som «the need to maintain a balance between the natural resources and human consumption that can generate goods and services without degradation of the balance between the two» (Wagner, 2017, s. 54). I sirkulær økonomi (Preston, 2012) inngår naturressursar i eit krinslaup for å bli brukt så lenge og effektivt som mogleg, og sirkulær økonomi er ei motvekt til lineær «bruk-og-kast-økonomi», der naturressursar blir sett i produksjon, og produktet blir til avfall etter bruk. Design handlar om å bruke ressursar på ein annan måte. Dimensjonen ligg tett på etablering av grunnleggjande matematiske ferdigheiter, som Bishop (1988) viser til som leik eller speling, teljing, måling, lokalisering, designing og forklaring. Vi ser ein samanheng mellom berekraftsomgrepet og mengdeomgrepet fordi ei rettferdig deling av godar handlar om å forstå omgrep som: likskap, mykje, lite, mindre enn og meir enn. Matematiske omgrep brukast til å forklare kvifor ein bør spare på varmevatnet, pante flasker eller sortere søppel. I vår samanheng er det særleg interessant at spel gjerne er ei modellering av røynda, der ein gjennom reglane har høve til å oppføre seg annleis enn i røynda Bishop (1988). Dermed kan det vere rom for å utvikle nye tankar og sjå føre seg ei annleis, meir berekraftig framtid.

Når det gjeld dimensjonen berekraftig styresett som tilnærming til utdanning for berekraftig utvikling, forstår vi arbeidsmåtar som gir rom for endringar som kan føre til større grad av likeverd, som kjenneteikn ved eit berekraftig styresett (Grindheim et al., 2019). Bygd på Biesta (2007) forstår vi demokrati som eit system (eit styresett) og det demokratiske som handlingar som fører til at systemet blir meir likeverdig. Styresettet i barnehagekontekst er forstått som arbeidsmåtar – altså reglane, rutinane, materiala og forståingane som er etablert i barnehagen. Vidare er det forstått som eit berekraftig styresett om styresettet gir rom for at også barn kan vise det etablerte fellesskapet at arbeidsmåtane – reglane, rutinane og aktivitetane som blir tilbode – kan gjerast på andre eller nye, meir likeverdige og solidariske måtar (Biesta, 2011). Dermed tolkar vi barn sin rett til medverknad (Kunnskapsdepartementet, 2017) som rett til både å delta i det etablerte styresettet eller systemet i barnehagen, og som at borna kan erfare å vere med å endre det etablerte mot større grad av likeverd og berekraft. Leiken blir ofte forstått som aktivitetar der borna har størst høve til å delta i det etablerte systemet sidan kjenneteikn ved leik er at den er festa i

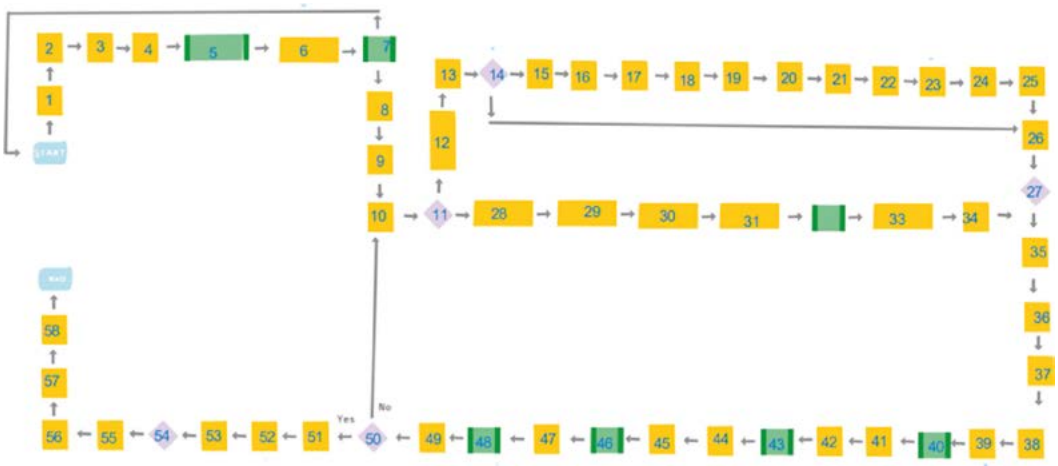
røynda og er styrt av reglar, samtidig som det transformative i leiken også gir borna spelerom til å endre reglar og sjølve leiketemaet (Grindheim, 2017). Vi ser brettspel, måten spelet er utforma og kva innhald det har, som eit situert styresett som organiserer om og korleis ein kan delta.

Metode

Tilnærminga vår til å skape eit forskingsgrunnlag for å kunne utforme og deretter prøve ut eit brettspel saman med barn som kan fasilitere utdanning for berekraftig utvikling i barnehagen, er gjennom verkstad (*workshop*) som forskingsmetode (Ørngreen & Levinsen, 2017). Verkstadtilnærming ligg nær forståing av meiningsskaping i dialogar mellom ulike partar som alle har kjennskap til tema eller saka som blir tatt opp i ein spesifikk verkstad. I vår samanheng er deltakarane i verkstaden barnehagelærarstudentar og barnehagelærarar som kjenner norsk barnehagekontekst, berekraftstilnærminga bygd på fire dimensjonar og det konkrete spelet. Dei har erfaring med utvikling av kvalitet i barnehagen, der kvalitet er forstått som tilrettelegging for mangfald, subjektivitet og ulike perspektiv i tid og rom (Dahlberg et al., 2007). Det trengs nytenking i ei skiftande verd med utfordringar ein ikkje kjenner svar på. Tanken er at fleire ulike menneske kan finne gode løysingar for leikbasert utdanning for berekraftig utvikling i barnehagen.

Gjennomføring av verkstadane og utvikling av materiale for analyse

Det vart gjennomført to verkstadar i november 2021. Aktivitetane i begge verkstadane var samla rundt eit enkelt brettspel modifisert for vaksne av ein av forskarane (figur 2). Brettspelet er henta frå «Design ditt eget spill» på nettstaden til Linda Liukas sin bokserie *Hei Ruby* (heiruby.no).



Figur 2. Brettspelet som var utgangspunktet for verkstadane

Alle dei 58 spørsmåla handla om utdanning for berekraftig utvikling, og det fylgde ikkje med spelereglar. Spelet blir forstått som eit sosialt og kulturelt verktøy. Ifylgje Hammersley og Atkinson (2007) er slike verktøy ofte oversette som kjelde for å forstå menneskes samhandling.

Den første verkstaden blei gjennomført saman med barnehagelærarstudentar i det internasjonale 30-studiepoengemnet omset til norsk som «Berekraftig utvikling gjennom barns medverknad». Alle spørsmåla i spelet handla om tema og litteratur frå emnet. Verkstaden blei gjennomført i ei undervisingsøkt som blei innleia av eit kort foredrag om leik og berekraft, om forskingsprosjektet vårt, kvifor vi gjerne ville ha dei med i prosjektet og kva deltakinga deira i prosjektet ville innebere. Deretter blei studentane presenterte for spelet og for spørsmåla utarbeida av oss og som vi ville dei skulle ha i mente medan dei spelte: Korleis var det å spele dette spelet? Korleis kan spelet bli utvikla slik at det blir relevant for barn? Studentane som ynskte å vere med i forskingsprosjektet skreiv anonyme svar på spørsmåla i eit digitalt samskrivingsdokument (Padlet). Studentane blei delte i to grupper. Forfattarane lytta og observerte kvar si gruppe av studentane som spela, forstått som delvis deltakande observasjon. Ytringane til studentane vart noterte på papirark, og deretter reinskrive og samla i digitale dokument.

Med tanke på at barnehagelærarstudentar er oppdatert på litteratur om leik og utdanning for berekraftig utvikling i barnehagekontekst, ville vi også hente innspel frå barnehagelærarar som har mange praktiske erfaringar med barn og brettspel. Slik utfyller innspela frå verkstadane kvarandre. I tråd med grunnlagstenkinga i verkstadtilnærminga involverte vi dermed fleire stemmer som kjenner både norsk barnehagekontekst og kjenneteikn ved dei fire dimensjonane, med mål om å få ei breiare forskingsbasert innsikt for seinare å kunne utvikle eit spel for barnehagebarn. Vi gjennomførte den andre verkstaden med barnehagelærarar frå fire barnehagar. Dei fire barnehagane var med i same barnehagekjede som allereie hadde gitt informert samtykke til å samarbeide med Høgskulen på Vestlandet for å arbeide med utdanning for berekraftig utvikling. Sjølv om dei involverte barnehagelærarane kjente til den firedimensjonale tilnærminga til utdanning for berekraftig utvikling, blei verkstaden innleia med eit kort foredrag om denne tilnærminga. Deretter vart det førebelse spelet introdusert, saman med spørsmåla utvikla av forskarane: Kva type spørsmål trengs for at spelet skal vere relevant for barn? Korleis kan designet vere relevant for barn? Korleis kan innhaldet vere for at det skal passe for barn? Barnehagelærarane arbeide i grupper på 4–8 personar. Innspela frå barnehagelærarane vart samla inn i som notat på papir. Materialet frå dei to verkstadane omfattar tjue A4-sider med reinskrivne notat i Word-format.

Analyse

Vi gjennomførte ein todelt analyse der vi kombinerte det å vere tett på innhaldet i materialet og det å sjå materialet i lys av det teoretiske rammeverket vårt (Nilsen, 2005).

Den fyrste analysen ligg tett på ei såkalla *bottom-up*-tilnærming, der innhaldet i materialet var førande for å dele materialet i to kategoriar. Det vil seie kva som handla om innhald i spelet som spørsmål eller oppgåver knytt til rutene, og kva som handla om forma på spelet. Den andre analysen ligg tett på ei såkalla *top-down*-tilnærming der teorirammeverket er styrande for kva ein ser etter. Denne andre delen av analysen vart gjennomført som to steg. Første steg var å bruke fargekoder for å markere stadar i materialet som spegla kjenneteikn ved dei fire dimensjonane i utdanning for berekraftig utvikling, og samla også materialet som spegla kjenneteikn ved leik. Tekst der vi spora dei ulike dimensjonane blei merka med fargekoder: grønt for økologisk berekraft, blått for økonomisk berekraft, rosa for sosial og kulturell berekraft og gult for berekraftig styresett. Andre steg var ein reanalyse av materiala som var kategorisert under den eine eller den andre dimensjonen, for å sjå om innspela kunne gjenspegle overlapping mellom dimensjonane.

Etiske og metodiske refleksjonar

Darsø (2001, s. 203) skriv at verkstad som forskingsmetodologi er særleg nyttig i studiar som er uføreseielege og karakterisert av interaksjon, slik som i vårt tilfelle. Sjølv om verkstadar kan bli sete for motstridande roller, forventningar og interesser (Ørngreen & Levinsen, 2017, s. 77), vart alle informantane våre ivrige bidragsytarar og deltakarar, kanskje fordi erfaringane deira var svært relevante for å utvikle spelet. Slik kan vi antyde at deltakarane i verkstadane fekk roller som kollegaer og samarbeidspartnarar (Cornwall & Jewkes, 1995). Vi blei likeverdige samarbeidspartnarar med komplementære roller; studentane kunne mest om særleg nyare teori og aktuell forsking, barnehagelærarane hadde brei erfaring med barn og spel, og forskarane hadde kunnskap om forskingsfeltet og om verkstadmetoden. Det at innspela var knytt til noko så konkret som eit utkast til eit brettspel gjorde kanskje sitt til at det blei lett å bidra og samarbeide.

Studien fylgjer også tradisjonelle krav til informert samtykke. Deltakarane i verkstadane var informerte om studien og gav samtykke til å delta. Dei kunne trekkje seg frå studien når dei måtte ynskje. Deltaking i studien hadde ingen innverknad på studentane si vurdering i faget, eller for om barnehagepersonalet fortsette samarbeidet med høgskulen eller ikkje.

Det kan stillast spørsmål ved om funna våre er truverdige og gyldige (Lincoln & Guba, 1985). Funna er kontekstsensitive; det er nettopp desse studentane og dei spesifikke barnehagelærarane sine innspel som utgjer materiale til analyse. Det er vi som forskarar med våre interesser, verdiar og syn på utdanning for berekraftig utvikling som har utvikla designet og gjort analysane. Kunnskapsproduksjonen er dermed knytt til interaksjonar som ikkje kan skapast på nytt.

Med mål om å skape truverd er vi transparente på kva som er målet med studien, den teoretiske ramma vi byggjer analysen vår på, og korleis data er konstruert og tolka. Med utgangspunkt i Maxwell (1992) har vi som mål å vise at funna er gyldige ut frå skildringar

av det som skjedde i verkstadane (deskriptiv validitet). Vi har også som mål at tolkingane våre er i tråd med deltakarane sine perspektiv (tolkingsvaliditet), og difor brukar vi eit rammeverk som også deltakarane i verkstadane kjente til. Dessutan prøver vi å skildre og operasjonalisere det teoretiske rammeverket vårt på ein forståeleg måte (teoretisk validitet). I tillegg har vi eit overordna mål om at kunnskapen vi skriv fram kan vere aktuell for barnehagepraksisar (generaliserbar). I siste instans er det lesaren som kan vurdere om vi oppnår desse måla.

Kva skal til for at spelet blir relevant som utdanning for berekraftig utvikling i barnehagen?

For å få indikasjonar på korleis eit slikt spel kan gi rom for leik som utdanning for berekraftig utvikling i barnehagen, gjorde vi både ein *bottom-up*-analyse og ein *top-down*-analyse (Nilsen, 2005). Vi presenterer funna under to overskrifter: «Innhald» og «Form», sjølv om det er stor forskjell på omfanget av innspel til innhald samanlikna med innspel til form. Sitat frå studentane eller barnehagelærarane, er skrivne i kursiv. Vi avsluttar både delen om innhald og delen om form med diskusjon om korleis innspela kan styrke utvikling av eit brettspel som utdanning for berekraftig utvikling i barnehagen i lys av det teoretiske rammeverket vårt.

Innhald

Sidan vi er interesserte i leikbasert utdanning for berekraftig utvikling, byrja vi *bottom-up*-delen av analysen ved å sjå etter forslag til spørsmål som handlar direkte om leik eller leiketøy. Barnehagelærarane foreslo nokre spørsmål som direkte handla om leik og leiketøy:

> *Kva kan du gjere med leikene når du ikkje leikar med dei lenger?*
> *Kan gutar og jenter leike med same leika?*
> *Du og vennen din leiker og har fem bilar kvar, og plutseleg kjem Lise og vil leike, men ho har ingen bilar. Kva gjer de?*
> *Kva leikar de i nabolaget?*

I *top-down*-analysen av det same materialet ser vi desse spørsmåla om leik og leiketøy i lys av det teoretiske rammeverket vårt. Kva vi gjer med leiker som ikkje er i bruk viser kjenneteikn på utfordringar med bruk og kast og den økonomiske dimensjonen (Wagner, 2017). Om gutar og jenter kan leike med same leika handlar om likeverd mellom kjønn og sosiale rettar, og speglar kjenneteikn ved den sosiale og kulturelle dimensjonen (Sacks, 2013). Fordeling av leiketøy handlar om fordeling av ressursar og speglar kjenneteikn ved den

økonomiske dimensjonen og matematiske ferdigheiter (Bishop, 1988). Kva som er mogeleg og lov å leike i nabolaget kan handle både om reglar og styresett (Biesta, 2007) og om tilgjengelege naturressursar og høve til å leike i natur, som er kjenneteikn ved den økologiske dimensjonen (Heggen, 2016). Vi ser dermed at fleire av innspela speglar overlapping mellom dimensjonar, men ingen av dei overlappar alle dimensjonane.

I *top-down*-analysen med mål om å få ein indikasjon på om å spele eit slikt brettspel kunne vere leik, leita vi etter kjenneteikn ved leik – som djup involvering og at leiken er eskalerande, sjølvmotiverande og speglar erfaring frå deltakarane sine liv (Grindheim, 2017; Lillemyr, 2021; Schousboe, 1999). Her ser vi materiala frå observasjonane av studentane som spela spelet og kommentarane på Padlet som relevante. Sjølv om barn og studentar ikkje er samanliknbare grupper, kan fenomenet leik samanliknast. Vi såg at studentane blei djupt involverte; dei gløymde tida, diskuterte reglar og leita etter svar i pensumlitteratur og på nett.

Vi kjenner igjen det eskalerande ved at diskusjonane vart meir høglydte og latteren satt lausare etter kvart som spelet gjekk sin gong. Det sjølvmotiverande finn vi i at dei gjerne ville fortsetje ut over tidsramma vi hadde satt. At spelinga spegla erfaringar frå eige liv kom tydeleg fram; sjølvsagt fordi spørsmåla spegla pensum i emnet, men også gjennom kommentarar som «Det blir rett heim å lese». Det forstår vi som klare erfaringar mellom behovet for å lese og å bestå eksamen. Studentane knytte det til eiga læring, og kommenterer at «det blei heilt annleis å forhalda seg til pensum på denne måten, enn å lese eller når læraren underviser». Vi forstå det slik at det var dei leikande elementa som førte til at ein slik måte å arbeide med pensum på blei «heilt annleis».

I tillegg viser *bottom-up*-analysen vår forslag om å ha med «tullespørsmål» og spørsmål som vekkjer humor. Både spørsmåla som handlar om leik og leiketøy og forslaget om tullespørsmål, ser vi også som ei konkretisering av den overordna tilbakemeldinga frå både studentar og barnehagelærarar om at «spørsmåla måtte bli knytt til kvardagslivet til borna i barnehagen og til slikt som borna kjenner frå sitt nærmiljø». No er «kvart spørsmål eit prosjekt», var ein kommentar frå verkstaden med barnehagelærarane. Dei foreslår at «spørsmåla gjerne kunne gjerast om til oppgåver som å hente noko eller gjere noko til dømes: lag ein gruppeklem». Både barnehagelærarane og studentane var opptekne av at «reglane burde vere klare og enkle». Dei foreslår også «spørsmål som kan svarast på kjapt og greitt som til dømes: kor mange søppelspann har vi på kjøkkenet i barnehagen og at borna sjølve kunne lage spørsmål eller oppgåver til dei andre borna». Studentane forslo også «premie som eit utbetringspotensial».

I *top-down*-analysen av materiala i avsnittet over tolkar vi innspel frå barnehagelærarane om å ha med «tullespørsmål» som ivaretaking av det eskalerande og sjølvmotiverande i leik. Kunnskap om det aktive leikande barnet med rett til å medverke for utbetring av systemet (Biesta, 2011) blir også spegla i innspel både frå barnehagelærarar og studentar om at det bør vere færre spørsmål, konkrete oppgåver og enkle reglar når spelet skulle utviklast

til barn. Sidan vi ser spelet som eit system som styrer ei situert samhandling, kjenner vi igjen kjenneteikn ved berekraftig styresett; borna blir meir likeverdige deltakarar om spelet høver til fysisk aktive, leikande barn. Forslaget om ruter der deltakarane sjølve kan foreslå oppgåver kan gi rom for uventa forslag. Det speglar også kjenneteikn ved berekraftig styresett (Biesta, 2007).

Gjennom *top-down*-analysen vår ser vi at delar av materialet som i fyrste omgang blei kategoriserte i ein av kategoriane, har overlappingar til alle fire dimensjonane. Det gjeld mange av spørsmåla, der vi har valt å sjå nøyare på to. Det første spørsmålet, *Kvifor ryddar ein i fjøra?*, vart kategorisert som å handle om sosial og kulturell berekraft. Ut frå vårt teoretiske rammeverk høver eit slikt spørsmål for barn som bur i eit lokalmiljø med historiske og kulturelle band til kystlinja. Der er det tradisjon for å leike, brenne bål for å steikje fisk eller pølser, og feire jonsok i fjøra. Dermed kan det å rydde i fjøra handle om at kultur og tradisjonar blir haldne ved like i ryddige omgjevnadar, der ein høyrer til, og som vi ser som sosial og kulturell berekraft (Birkeland, 2009; Horrigmo, 2014). Men å rydde i fjøra rører også ved sentrale aspekt ved økologisk mangfald. Spørsmålet kan føre til samtalar om det biologiske mangfaldet i fjøra, og kva fylgje plast kan ha for økosystemet. Slik kan ein arbeide med barn sitt forhold til naturen, og fremje forståing av det gjensidige forholdet mellom natur og menneske (Næss, 2005). Kvifor ein ryddar i fjøra kan handle om sirkulær forståing av ressursbruk (Preston, 2012), altså økonomisk berekraft ved å redesigne rekved til formingsprodukt. Det kan også knytast til forståingar av strandsona i ulike verditilnærmingar som både økonomisk verdi, nytteverdi og affeksjonsverdi. For at barn skal kunne snakke om *mykje* søppel treng dei grunnleggjande matematiske omgrep om mengde og måling (Bishop, 1988). Spørsmålet kan også knytast til berekraftig styresett, om eit system for regulering av måtar å vere saman på, og korleis ein forvaltar strandsona som ressurs. Borna sine grunngivingar for kvifor ein skal rydde, kan også gi innspel til andre måtar å regulere ferdsel i strandsona, og korleis ein kan løyse problemet med forureining i fjøra. Slik kan det kome innspel som kan endre det etablerte systemet (Biesta, 2007) mot større grad av berekraft. Dermed ser vi at spørsmålet kan gi innspel til samtalar og aktivitetar som rører ved alle dei fire dimensjonane ved berekraft.

Det same gjeld forslaget til spørsmålet *Kva ville du gjort om du fekk hol i buksa?,* som vart kategorisert under økonomisk berekraft fordi spørsmålet kan gi gode samtalar om verdi og ressursar (Wagner, 2017), reparasjon, konsum, gjenbruk og sirkulær økonomi (Preston, 2012). Ein kan lære grunnleggjande matematiske omgrep som mengde (Bishop, 1988), ved å bruke *færre* pengar på kjøp av klede kan ein bruke meir på noko som er meir berekraftig, som til dømes ei kulturoppleving. Ved å gjere buksa om til kortbukse blir det (re)designing (Bishop, 1988). Den økologiske dimensjonen er også synleg sidan spørsmålet vedkjem kvifor vi skal ta vare på bomullsstoff utvikla frå bomullsplante, som er ein naturressurs. Dermed rører vi også ved naturen og forholdet mellom natur og menneske (Heggen et al., 2019; Næss, 2005), sidan vi haustar av naturen og blant anna lagar klede av

det vi haustar. Kunnskap om korleis ein reparerer sunde klede er arva frå tidlegare generasjonar. Korleis og om slike reperasjonar blir gjort, heng saman med den lokale, sosiale og kulturelle staden der ein høyrer til (Horrigmo, 2014), og dermed om sosial og kulturell berekraft. Kva ein gjer med buksa som er hol i, handlar også om styresett; om kva reglar og system ein har i eit fellesskap (Biesta, 2007). Om ein til dømes har «system» for å reparere, eller for å levere sunde klede til gjenbruk.

Analysen som handla om innhaldet i spelet, viser at spørsmåla kan famne alle fire dimensjonane, og at dimensjonane påverkar kvarandre. Vi tenkjer også at kompleksiteten kan reduserast ved at det ikkje treng å vere spørsmål knytt til alle rutene, og at det kan vere praktiske oppgåver. For å ta vare på det leikande i felles spel og med tanke på det å høyre til og delta i felles aktivitetar som kjenneteikn ved sosial og kulturell berekraft, ser vi at slike praktiske oppgåver kan vere noko som alle borna gjer, ikkje berre den som trilla terningen. På nokre ruter kan borna lage spørsmål eller oppgåver sjølve. Ut ifrå rådet om å ha klare og enkle reglar for kven som tapar eller vinn, vil vi prøve ut at ein av spelereglane skal vere at terningkast seks gir eit ekstra slag. Sidan fleire av spørsmåla er såpass opne, utan fasit, kan spelet som system opne for uventa innspel og svar. Det er i tråd med vår forståing av berekraftig styresett (Biesta, 2007). Vi tenkjer difor at framdrift mot mål, handlar mest om kva terningen viser.

Forventning om premie er i tråd med kulturelle og historiske tradisjonar og dermed kjenneteikn ved den sosiale og kulturelle dimensjonen (Horrigmo, 2014). Ein har ofte satsa noko – til dømes pengar – i slike spel. Sjølv om spørsmålet om premie kan forståast som ei form for ytre motivasjon, ser vi premie i vår kontekst som nærare eit element som skapar eskalering og dermed som kjenneteikn ved det leikande (Schousboe, 1999). Ein premie kan også vere noko morosamt eller tøysete, som til dømes at den som vinn kan fortelje ein vits eller ta med seg alle på ein springmarsj rundt bordet. Sidan vi prøver å skape eit godt styresett gjennom reglane som fremjar likeverd, er det særs viktig at vi prøver reglane ut blant barn, og ser korleis dei blir tatt i bruk og gjort meiningsfulle for borna. Det er fyrst då vi kan sjå om dei skapar likeverd og korleis dei kan utbetrast for å oppnå eit betre og meir likeverdig spel. Men moglegheit for å vinne eller tape må vere der, elles forsvinn det leikande og engasjerande.

Form

Bottom-up-analysen vår viser forslag til utforming av spelet. Der er forslag som til dømes «større samsvar mellom form og innhald, ved til dømes at spørsmåla kunne vere fargekoda og spegla dei fire tilnærmingane», eller at «spelet kunne vere utforma som eit tre». I motsetnad til den kvadratiske forma som fylgde ei løype slik utkastet til spelet var utforma, foreslo informantane «ei sirkulær form på spelet, kanskje med inspirasjon frå jordkloden». Det kom også forslag om at «tala i rutene kunne erstattast av figurar».

I *top-down*-analysen vår ser vi utforming av spel som utforming av eit system – ei situert, lokal form for styresett med reglar som avgjer kven som taper og vinn og som knyter

sosiale band mellom deltakarane ved hjelp av historiske og tradisjonelle samværsformer. Dermed kjenner vi igjen både den sosiale og kulturelle dimensjonen (Sacks, 2013) og godt styresett (Biesta, 2007). Samsvar mellom rutene ein kan gå og auger på terningen ein har trilla, viser til matematiske omgrep som teljing og måling. Forslaga handlar dermed om matematiske omgrep som form, lokalisering og designing (Bishop, 1988), og dermed ser vi kjenneteikn ved den økonomiske dimensjonen. Når det gjeld form, såg vi i fyrste omgang lite til kjenneteikn den økologiske dimensjonen.

Analysen vår som handlar om forma på spelet gir innspel til vidare utvikling av spelet. Vår opphavelege manglande merksemd mot den økologiske dimensjonen gjorde oss merksame på at materiale til spelet må vere nøye gjennomtenkt og støtte forholdet mellom natur(materiale) og barn (Hammer & He, 2016). Slik kan vi kome nærare overlapping av dei fire dimensjonane. Det gjer også at vi heller vil gå for ei form på spelet som støttar overlappingar mellom dimensjonane – til dømes ei sirkulær form inspirert av jordkloden – enn fargekodar med tilvising til kvar enkelt dimensjon. Om tala skal erstattast av figurar må vi tenkje meir på. I og med at vi ser forståing av mengde som relevant i utdanning for berekraftig utvikling er det relevant å bli presentert for tal som abstraksjon av mengde. Samtidig kan tal som abstraksjon kanskje nettopp bli for abstrakt for særleg dei yngste barnehageborna.

Oppsummering

Analysen vår viser konkrete innspel til tre overordna tema om kva ein kan vektleggje om ein vil lage eit brettspel som kan fasilitere utdanning for berekraftig utvikling for barnehagebarn. For det første kjem det fram korleis både innhald og form kan omfatte fleire og ulike dimensjonar av berekraft. For det andre blir korleis ein kan ivareta det leikande og transformative tydleg. For det tredje viser innspela korleis ein kan skape barnenære oppgåver der borna sine interesser og måtar å delta på er i fokus.

Avsluttande refleksjonar

Målet med studien var å skape eit forskingsgrunnlag for å kunne utforme eit brettspel for barn som kan fasilitere utdanning for berekraftig utvikling i barnehagen. Barnehagelærarstudentane og barnehagelærarane gir innspel både til form og innhald som rører det overlappande område som omfattar dei fire dimensjonane av berekraft, det vil seie den økologiske, den økonomiske og den kulturelle og sosiale dimensjonen. Forhandlingar og utforming av reglar slik at systemet kan bli meir berekraftig, er døme på den fjerde dimensjonen, altså berekraftig styresett. Ved å bruke eit forskingsbasert teoretisk rammeverk til å analysere innspela frå barnehagelærarstudentane og barnehagelærarane vart det mogeleg å sjå innspela i breiare perspektiv og å kunne argumentere for kva som

kan forståast som utdanning for berekraftig utvikling i barnehagen. Ei slik ramme kunne også vore interessant for å vidareutvikle allereie etablerte brettspel for eldre barn (til dømes Ozenc, 2020; Stanitsas et al., 2019; Tsai et al., 2021) til barnehagebarn.

Tidlegare forsking, som til dømes Vogt et al. (2018), gir tyngde for å vektlegge det leikande ved eit slikt spel. Det same gjeld Bayeck (2020), som viser at spel kan fremje endringar i tankar og åtferd. Vår analyse av innspela frå barnehagelærarstudentane og barnehagelærarane viser korleis dette kan gjerast i ei fleirdimensjonal tilnærming til utdanning for berekraftig utvikling. Her er sentrale innspel om korleis ein kan i vare ta det leikande. Som Bubikova-Moan et al. (2019) tolkar vi studentane og personalet sitt engasjement i verkstadane som at leikbasert berekraftig utdanning skapar stor interesse og stort engasjement i barnehagefeltet. Engasjementet kan kanskje også seie noko om at leik er eit prioritert aspekt i utdanning for berekraftig utvikling i barnehagen (Caiman & Lundegård, 2014; Samuelsson & Kaga, 2008).

Funna om korleis ein kan skape barnenære oppgåver der borna sine interesser og måtar å delta på er i fokus, er i tråd med Sterling (2010) og Wals (2012) sine tilnærmingar til utdanning for berekraftig utvikling. Våre funn viser tilnærmingar som gjer spelet enkelt og konkret, og samstundes dynamisk i takt med kven som spelar. Det blir fleire opne spørsmål utan faste svar, og ein kan gå djupare inn i tema om det høver for spelarane. Spørsmåla kan setje i gang aktivitetar, tankeprosessar og samtalar om viktige sider ved utviklinga av framtida. Slik kan vi ha håp om å fasilitere ei transformativ, myndiggjerande og deltakande tilnærming til tema for berekraftig utvikling som er ankra i barn sin måte å vere i verda og i deira erfaringar. Spelet kan fasilitere samhandling, dialog, leik og utforsking med eit overordna mål om å støtte barn i å utvikle kritisk tenking, gjere etiske vurderingar og utvikle motstandskraft og evne til å handle for endring (Kunnskapsdepartementet, 2017). Tilnærminga har leiken som berebjelke og drivkraft for nye eller uventa tilnærmingar til berekraftig utvikling. Leiken og brettspelet inngår i ein etablert tradisjon for pedagogisk praksis, men både vi som lagar spelet og dei som skal spele spelet kan tilføre innhald og føremål.

Analyse av forslaga til utbetring av spelet for å vidareutvikle det til eit arbeidsreiskap for utdanning for berekraftig utvikling, gir støtte for at det er mogeleg å utvikle eit slikt spel. Kor vidt spelet kan føre til transformasjon og nytenking kan eventuelt kome til syne i praksisar der spelet blir brukt. Det same gjeld kor vidt det blir opplevd som meiningsfullt (Marjanovic-Shane, 2011), motiverande for læring (Dziob, 2020), skapar eit artig og spanande læringsmiljø (Royse & Newton, 2007) eller styrker samarbeidslæring (Griffin, 2004). Difor skal spelet prøvast ut saman med barn og vidareutviklast ut frå korleis utprøvinga blir. Slik blir også borna sin medverknad viktig for meir enn at dei får oppfylt rettane sine. Borna blir med å utvikle praksisar. Dette er i tråd med tanken om at berekraftig utvikling treng innspel både frå ulike menneske, frå ulike fag og ulike kunnskapsformer.

Forfattaromtalar

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Alternative Perspectives on Environmental and Sustainability Education: A Study of Curriculum Policies across India, China and Japan

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Abstract: Environmental and Sustainability Education (ESE) in the formal sector is evolving rapidly across global contexts. Early Childhood settings are increasingly being seen as fertile grounds for promoting ESE values, attitudes and life-long pro-environmental behaviours. This article provides an in-depth understanding of the Early Childhood policy frameworks in India, China and Japan, focusing on how these support ESE implementation in Early Childhood settings. The study provides a comparative analysis of the key commonalities in the policy frameworks, the main enablers and vital challenges. It also offers a deep conversation on the convergences and divergences that bring together these three Asian countries in their goals of ESE implementation. Finally, the paper appeals to a global audience by offering a review of non-dominant approaches in these three countries, drawing upon their distinctive social, cultural and political contexts. The paper showcases the commonalities and divergences in Eastern cultures and also provides a lens to decipher key shifts from dominant Western philosophies. Overall, the paper responds to the call of this special issue to look at alternative perspectives and understand ESE in different contexts.

Keywords: environmental education; sustainability; early childhood education

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1. Introduction

Environmental and Sustainability Education (ESE) is slowly gaining momentum due to the increasing environmental issues and the urgency to help resolve them. Education in many ways offers an opportunity as a driving force for bringing about change [1]. The ongoing pandemic has in many ways reinforced the needs for caring for our planet, and ensuring ESE is a key parameter across all education parameters, especially ECE. The concept of sustainability continues to be complex and is still fluid with many versions. One particular version of sustainability that speaks to the authors has been provided by Davis [2], in which she positions sustainability as an issue of social justice and fairness that disproportionately impacts poorer people and whose effects will be felt much more strongly by the future generations, namely our children and grandchildren.

There is a need for varied lenses in creating better understandings of this sustainability [3]. Sustainability also has many dimensions such as space, time, history, ethics and culture. How sustainability is understood therefore 'differs from country to country, culture to culture, develop over time and are based on varying sets of norms and values' [3] (p. 9). Current understandings on how environment and sustainability tend to be heavily influenced by predominantly Western perspectives [4]. While ESE is critical at all stages and in all sectors, its role in Early Childhood Education (ECE) has yet to gain wider recognition. ECE provides immense opportunities to lead children into 'interest, knowledge and values

that will give support for a more sustainable world', as it capitalises on children's innate curiosity and ability to connect to the natural world [5] (p. 369). The social, economic, health and educational benefits of ECESE (Early Childhood Environment and Sustainability Education) have proven to be immense with great value in building children's capabilities as young active citizens [6].

There have been regular calls for transformative learning that goes beyond 'nature play' [7] and supports the development of active citizens that understand sustainability at deeper levels [8]. Place-based education that takes into consideration local perspectives is critical towards supporting these initiatives. In Green's [9] (p. 164) words, 'children's sustainability knowledge is produced from diverse and multiple relational interactions . . . through sensorial, experiential, open-ended and place-based ways of learning'. Educators are seen as agents of change that are responsible for ushering the reforms needed for impactful ECESE [8]. Campbell and Speldewinde's [10] research further emphasizes the role of educators in promoting ECESE whereby when provided with the right opportunities by their teachers, young children develop a deep understanding of a range of key elements of sustainability.

Critical inspection of the impact of international development on how children and families are seen in non-Western perspectives is important [11]. An earlier study offered a good comparative analysis of key concepts in a few of the more economically developed nations [12]. It is timely to look into alternative perspectives and what they have to offer in terms of complementary conceptions of environment and sustainability.

The main objectives of this article are:

- To analyse environmental and sustainability education concepts in early childhood curriculum policy in India, China and Japan.
- To provide a comparative analysis of these key ESE concepts between these three nations as well as with Western notions.
- The key Research Questions:
- How are environmental and sustainability education concepts embedded (present) in early childhood curriculum documents in India, China and Japan?
- What are the similarities and differences among these perceptions, and how do they compare to existing Western notions of ESE?

Significance of This Study

This study is an attempt to provide a glimpse into those windows. We offer a comparative analysis of key concepts and understandings of environment and sustainability enacted through key policy documents in India, China and Japan. We also weave in the differing operating cultural paradigms and discourses that at times appear to converge and at other times diverge. It showcases alternate concepts of ESE and how these might be used to advance the entire global discourse of ESE. This is highly significant given the paucity of research that offers similar comments and critical insights into ECE curriculum in three major Eastern countries. India, China and Japan were chosen due to the pre-exiting opportunities for collaboration. The comparison also supports the key research aims to address significant knowledge gaps in understanding policies and practices. This brings out the richness of the various understandings, as well as the fertile options available to the global audience when navigating ESE.

2. ESE in EC Settings: Overview of ECE in India, China and Japan

ECE education system and pedagogy were basically first imported from the West in the 19th century; therefore the basics of ECE in three countries have been influenced by Western pedagogies, although each country has developed to infuse its own pedagogy from cultural perspectives [12]. We, the authors, had robust discussions on what key concepts of ESE in Early Childhood settings stand out in our contexts. These conversations offered ideas for comparison across different curriculum settings and helped us narrow our focus concepts to the following:

Environment, sustainability, nature, critical thinking, agency, voice, children as participants and children's rights and care. The following section will provide a deeper understanding of the uptake of these concepts.

Table 1 shows the policy documents, role of the government and centres, role of the teacher and the view of children described in the policy documents in the three nations.

Table 1. Overview of the policy documents, roles of the governments and centres, and the view of teachers and children.

	China	India	Japan
Documents	• Early Learning and Development Guidelines for Children Aged 3 to 6 Years [13]. • Kindergarten Education Guidelines [14]. • Constitution [15].	• National Early Childhood Care and Education Curriculum Framework [16]. • National Education Policy [17].	• Course of study for Kindergarten (age 3–5) [18]. • Guidelines for Care and Education in Nursery Centres (age 0–5) [19]. • Course of study for Centrers for Early Childhood Education and Care (age 0–5) [20].
Role of the government and centres	• Central government creates policies including curriculum. • State government: Policy making, monitoring. • Provincial and municipal governments have autonomy and flexibility to decide the contents.	• Central government creates policies including curriculum. • Individual states having autonomy and flexibility to implement it. • State government: Policy creation and support through NCERT for public schools. • Private centres follow public policy but work independent of the state.	• Central government creates policies including curriculum. • Individual services have autonomy and flexibility to implement them. • The total of 47 prefectures have 1724 municipalities. Early childhood services are governed by the local governments of municipalities.
Role of the teacher	• Leader • Provider • Facilitator	• Guru—the one who leads. • Facilitator • Leader	• Creator of the learning environment. • Supporter of children. • Model of human beings.
The view of children	• To be protected, cultivated and guided, having agency to certain degree.	• Innocent • To be protected and guided. • Limited responsibility and authority offered to the child.	• No description about the view of children, just describing developmental features.

2.1. Indian Setting

India has a diffused education system. There is a national education curriculum, and the central government suggests policies and programmes for the entire country. However, each state is responsible for managing how the central mandates are adopted within the state, thereby allowing for flexibility based on context. This is important because India is a hugely diverse country with nearly 1652 languages and many more dialects (REF). The National Council for Educational Research and Training (NCERT) is a national organisation that plays a key role in developing policies and programmes, which are adapted by the State Council for Educational Research and Training (SCERT). However, each state has reasonable freedom in implementing these within their education system. The recently released National Education Policy [17] recognises Early Childhood Education within the formal sector for the first time. The NECCECF [16] provides a clearer picture of the role of teachers in the system.

The National Council of Teacher Education (NCTE) plans and coordinates all teacher education in India including EC or pre-primary levels. The NECCECF [16] recognises ECE and qualifications of teachers as a highly neglected issue that needs stronger governance and quality control. At the moment, accreditation as an EC educator is through a Diploma in Education or a Bachelor's degree in Education. There are numerous providers, both private and public, that provide these educational options with varying levels of theory, practice and experiences. There are no central government qualifying examinations nor any centrally mandated ongoing professional development programs, which often present an issue of quality control. This all leads to EC teachers who are under-prepared or inadequately prepared with courses that are obsolete and devoid of practical hands-on training [16].

The NECCECF [16] provides a clear understanding of the role of the teacher as a guide and facilitator, determining it as the single most important (and yet most neglected) factor when it comes to quality of ECE. Traditionally, teachers are respected as 'guru', someone who leads from darkness to light, the provider of wisdom and skills. While EC teachers are provided some nominal respect, this high status is generally reserved for teachers of higher grades. EC teaching is seen as an 'easy job' that anyone can do and does not require many skills or much professional learning. The ambiguity in qualification standards further lends credence to this bias. The NECCECF [16] recognises the need for standardised improved and ongoing professional development opportunities for EC teachers, a stronger curriculum and closer connections to community. It calls for teachers to enjoy being with children, to be knowledgeable about child development and to possess requisite skills to implement ECE programmes. The role of the teacher is well articulated in this policy document, with clear indicators of expectations and requirements all geared towards all-round development of children [16] (p. 62).

2.2. Chinese Setting

In China, a centralised country, all important educational decisions are made centrally. In the meantime, the provincial and municipal governments have the autonomy to issue rules and regulations on ECEC suitable to their own conditions and resources within the framework of educational law and policies issued by the central government.

According to Professional Standards for Kindergarten Teachers [21], kindergarten teachers should have professional ethics, professional knowledge and professional skills which require them to have received professional education and training before and during their service. To be a kindergarten teacher, one must take local exams to obtain a teacher certificate and the basic requirement is that she/he has completed tertiary education. The guidelines have made it clear that kindergarten teachers should shoulder different responsibilities in their daily work. First, they should be teachers who help the children build a solid foundation for their subsequent school learning and their lifelong development and education. They should be a leader to lead the children to carry out different activities. At the same time, they should be providers when children need any support, materially or psychologically. Teachers are also facilitators who facilitate different activities among children and communications with parents.

2.3. Japanese Setting

Japan has a long history of national guidelines (curriculum) since the end of the 19th century [22]. Certificates are also national licences. The national guidelines influence not only education provided by early childhood centres, but also the curriculum of teacher education in universities (four years), in other teacher training schools (two years) and in teachers' professional development. However, the local government (usually municipalities governments) has responsibility for the management of early childhood services. In Japan, services for early childhood education are run by both public and private sectors. Public centres are governed by the municipal governments; therefore their practices are directly influenced by the national guidelines. However, for private centres, it is difficult to

introduce the philosophy of the national guidelines. For example, the national guidelines do not recommend teacher-centred teaching. However, some private centres engage in teacher-centred teaching for reading, writing and mathematics. In Japan, in the revision of the national curriculum in 1989, it was confirmed that early childhood education is child-centred, and education is through the children's (learning) environment. In this scheme, a teacher's role is as creator of the learning environment and supporter for children to produce independent play in their ordinary lives. Some 30 years have already passed since this revision, and this philosophy has penetrated, especially in public sectors. Other than these, a teacher is expected to care about children like a parent, to behave as model human beings, to maintain documentation and to support families. Nowadays, early childhood teachers have various roles.

3. Theoretical, Conceptual and Analytical Frameworks

To generate a systematic analysis, we started by analysing some key initial ESE concepts and quickly found a broader usage of other terms in the curriculum. Figure 1 below illustrates the concepts we have utilised for analysis followed by their definitions, which we have adopted for analytical purposes. In Figure 1, we position ESE as containing two main concepts—Environment and Sustainability. We see these two concepts like two sides of a coin in which no one side is more important than the other. The sub-concepts that emerge from this central star illuminate the field.

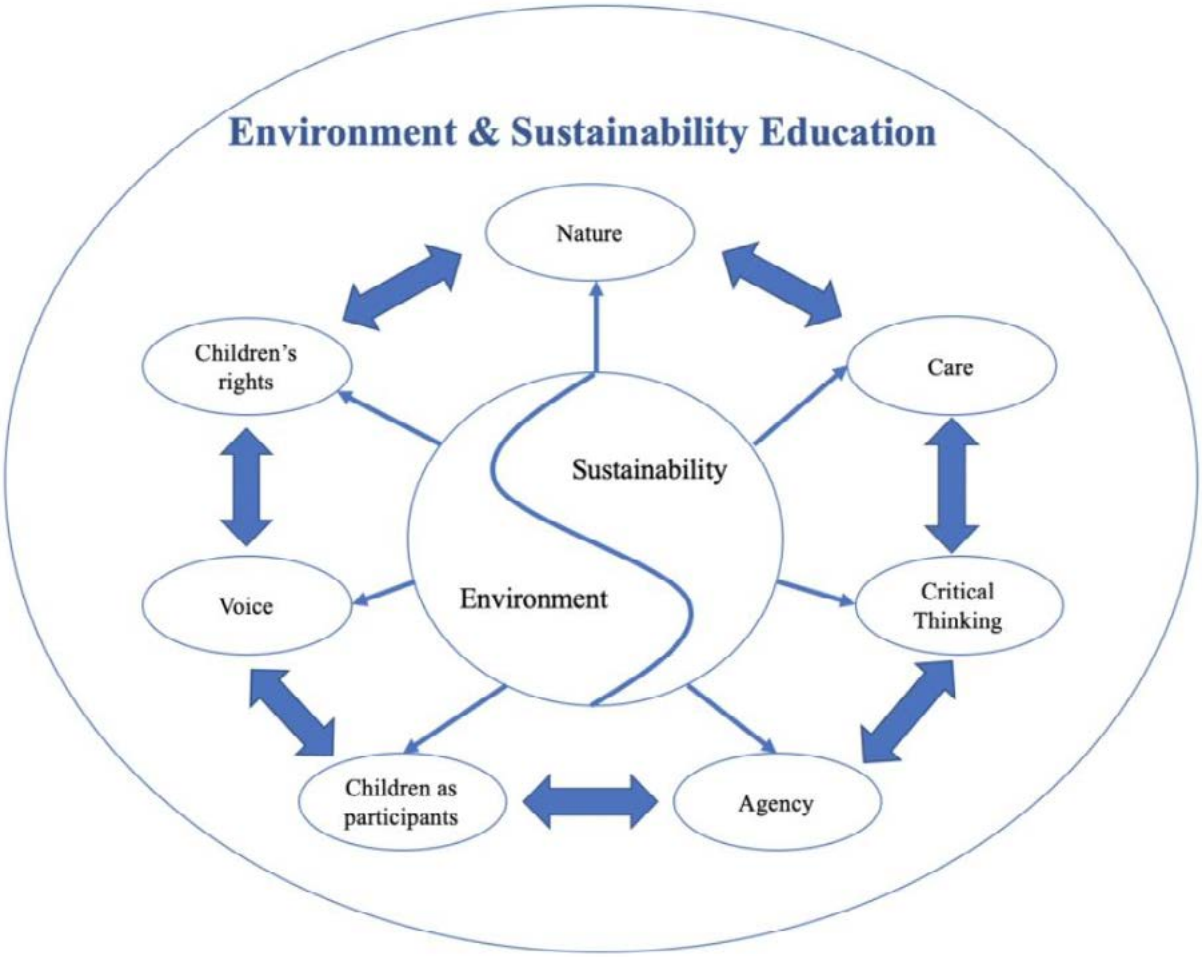


Figure 1. The terms for analysis—the ESE star.

Environment is a widely used term with a broad range of definitions and meanings. According to the dictionary definitions, it can cover 'nature', for example, the air, water,

minerals, organisms and all other external factors surrounding and affecting a given organism at any time. It can also be the aggregate of surrounding things: conditions, or influences; surroundings and milieu. It can also be the social and cultural forces that shape the life of a person or a population. Additionally, it can mean an indoor or outdoor setting that is characterised by the presence of environmental art that is itself designed to be site-specific.

Sustainability The complexity of sustainability has often been dissected into three dimensions: ecological, economic and social/cultural [23] (p.375). Davis [2] positions sustainability as something that goes beyond simply addressing concerns with the natural environment. According to her, 'sustainability emphasises the linkages and interdependencies of the social, political, environmental and economic dimensions of human capabilities. It 'acknowledges relationships between humans and between human and other species, is underpinned by critique of the ways in which humans' use and share resources and recognises intergenerational equity issues' [2] (p. 3).

Nature here refers to natural landscapes and places and green areas of uncultivated land, which may be shaped by human activities, but the elements of earth, air, water, growing things and wildlife exist independently of human intervention. This also includes parks and urban areas [24] and covers the local environments used by the children [24].

Critical thinking is an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experience, knowledge of the methods of logical enquiry and reasoning and some skill in applying those methods [25].

Agency means the capacity, condition or state of acting or of exerting power; an agent is a person or thing through which power is exerted or an end is achieved.

Voice generally means sound produced by vibrations by means of lungs, larynx or syrinx, especially sounds produced by human beings, but it also means an instrument or medium of expression.

Children as participants means children who take part in or become involved in a particular activity.

Children's rights according to UNICEF [26], children and young people have the same general human rights as adults and also specific rights that recognise their special needs. Children are neither the property of their parents nor are they helpless objects of charity. They are human beings and are the subject of their own rights. The Convention on the Rights of the Child sets out the rights that must be realised for children to develop to their full potential.

Care means the process of protecting someone or something and providing what that person or thing needs.

3.1. Methodology for Comparative Analysis

Precursors to the study were chance encounters and conversations between the three researchers. Two of us had met at the Transnational Dialogue 4 (TND4) symposium in Victoria, Canada. Engaging in the workshops and conversations with a range of international participants, we were made conscious of the richness in bringing together different perspectives on ESE, especially in early childhood settings. Another chance meeting in China with the third participant led to similar thoughts of how ESE is viewed differently across countries. These conversations led to a consensus on the need for a comparative study of ESE across cultures, traditions and society.

Our aim is to put together a long-term collaborative study that showcases how ESE is understood, negotiated, determined and implemented in different contexts. This article is a first step in this direction and starts at what we see as the beginning of this research agenda. We aim to analyse how key concepts of ESE are described in different Asian nations. The key concepts were first discussed in line with Weldermariam et al.'s [12] article that highlighted these concepts.

3.2. Dialogical Analysis

The dialogic aspect of the analysis process means where we, the three researchers, were in dialogue with each other. One key aspect of the dialogue was identifying what came across as key concepts [12] in our individual contexts. The authors are able to provide insiders' views [27] of their own cultures after independently analysing the data. In the meantime, as outsiders of the other two cultures, we could then recognise aspects that the insiders might not see [27], which contributed to the dynamic and interactive dialogues and allowed for deeper thinking and comparison. This process included regular weekly Zoom meetings with the authors for over five months discussing ideas, churning through key terms and comparing different perspectives, as well as attempting to jointly write up the analysis of key concepts. A major enabler supporting this study has been technology with the COVID-19 pandemic providing increased confidence in using Zoom, shared drives and documents.

Table A1 in Appendix A provides a snapshot of the conversations that led to the analysis of the concepts that we as authors and researchers see as important to our respective national contexts. This, though, leaves it open to researcher bias and individual interpretations; it is agreed that the number of mentions of the term counts is the number of the appearances of the terms in the analysed documents.

4. Analysis and Results

4.1. India

Analysis of the recently released National Early Childhood Care and Education Curriculum Framework [28] shows that the term 'environment' is prominent and mentioned 25 times in this key policy document. It shows a common reference to the term as a physical space which needs to be decorated, which can be observed for patterns, colours and shapes and where one can celebrate festivals. The environment is our surroundings, including one mention of the plants/animals and the need to prevent pollution. However, a more holistic understanding that goes beyond the environment as a 'resource' and promotes engagement with the everyday environment is absent. Sustainability has zero references in the new curriculum. This term is missing completely despite the fact that India is a major signatory to key international documents that promote sustainability, has robustly participated in the development of the Sustainable Development Goals and is seen as actively aiming to achieve these. The question to ask is how this can be achieved if the term 'sustainability' is missing from its key document that shapes education of future generations.

The curriculum promotes nature as something out there to be admired for its colour, pattern and beauty rather than something that is part of young children's everyday lives. The ambiguity of the term 'nature' means that how children perceive 'nature' can be heavily reliant on how children understand this term and their lived experiences. It also means that children do not see their everyday life experiences as linked to 'nature' which does not then include their outdoor play spaces, local green spaces or even windowsill gardens. Sobel [29] promotes ecophilia as a means to promote environmental consciousness and values. In order to do this, he highlights the need to incorporate 'nature' learning experiences in the curriculum.

This flows on to the lack of connection with 'care' (mentioned 38 times) towards the environment, everyday 'nature' or the planet. This leads to a dichotomy in how we understand 'nature' as something out there in the distance rather than something that is part of our daily milieus.

Interesting concepts of critical thinking, voice, agency, children as participants and children's rights elicit no mention in this curriculum document. There is one mention in the entire document of the term 'responsibility' as something that caregivers and teachers are expected to create 'opportunities for taking responsibility' on [28], p. 41. It still does not stem from what children can actively do but is projected as something the educators/caregivers may aspire to provide. The latest National Education Policy [16] provides two mentions of environment specifying what it entails, including climate change, but

limits this to Higher Education Institutions, thereby losing an opportunity to strongly embed ESE within the entire policy and more specifically in ECE.

4.2. China

The term 'environment' is mentioned 25 times in total in the national guidelines for kindergarten curriculum development. It has been referred to as the 'natural environment' which one needs to get to know and protect; a physical space which needs to be created for children to feel safe and comfortable; a social environment that needs to be warm and friendly for children to experience love and care and develop a stable and positive attitude towards life; a living environment which needs to be decorated and an educational environment that needs to be engaging so that children can learn. The environment is our surroundings, including one mention of the plants/animals and the need to prevent pollution. Additionally, it is advocated that children should engage with the everyday environment and the surroundings. Sustainability is missing completely, despite the fact that China is promoting sustainability and is robustly participating in the development of the Sustainable Development Goals. Moreover, kindergartens are conducting some projects about sustainability, especially from the environmental dimension [30]. The question raised in the Indian context about missing the terms also applies to China.

The curriculum describes nature as the natural physical world including plants and animals and landscapes, which children need to have knowledge about, as well as to respect and protect. Nature is also used to denote the embedded/essential characteristics of something substantial, which children should also have knowledge of.

Concepts of critical thinking, agency, children as participants and children's rights elicit no mention in the Chinese guidelines. However, thinking is mentioned six times. It is stated there that teachers should encourage children to think and promote their logical and visual thinking. In addition to this, teachers are asked to promote and protect children's curiosity. Although 'voice' as a term has been mentioned six times, it is only about how to help children to use their voices, not as articulation/expression of opinions and views.

Independent/independence is mentioned six times in the Chinese guidelines. Children are encouraged to make independent choices and take care of themselves in everyday life.

The concept of care is mentioned 19 times in the Chinese guidelines, as it talks about adults, especially teachers, taking care of children. At the same time, it promotes children developing abilities to take care of themselves, nature and the environment, as well as people around them, especially older adults.

4.3. Japan

The term 'environment' is mentioned 29 times in the Japanese national curriculum. Early childhood education in Japan is regarded 'to educate young children through their environment'. This concept was first described in the revision in 1989 and has been regarded as highly important as a fundamental of early childhood education in the national curriculum. This 'environment' was defined as 'everything surrounding a young child including the physical environment such as materials, toys and playground equipment; human environment, such as friends and teachers; nature and society; time, atmosphere'. Therefore, 'environment' means the learning environment for children in the Japanese national curriculum. According to this definition, nature is regarded just as one factor of the environment. This positioning of nature in early childhood education seems to reflect the view of nature in the modern world: nature is the resource for human activity, such as economy.

As for the term 'nature', we can find it 18 times. The terms 'animals', 'plants' and 'seasons' are used as facets of nature. In the Japanese curriculum, nature is one aspect of the learning environment which not only enhances children's curiosity and logical thinking, but also influences children's aesthetic sense and enriches our lives. The national curriculum describes 'leading a life close to nature, being aware of its grandeur, beauty and wonder'. Although the national curriculum describes the significance of nature in early childhood

education, nature is regarded as just a tool for children's development; therefore, there are no descriptions about sustainability, protection of nature, ecosystems or biodiversity.

It is recommended that children independently explore their surrounding environment with curiosity. That way, they can discover things, think logically and develop skills to enrich their play. Therefore, thinking ability is described as important in the national curriculum. However, the translated Japanese term for the English term 'critical' might not create a positive impression for most Japanese because direct expression with critical nuances is not accepted in Japanese culture [22]. People are still required to respect elder persons, senior persons, persons with long experience or persons in a higher position, and saying something against them is regarded as rude. In the Japanese language, people still use different and complicated rhetoric towards such persons. In educational settings, therefore, children are required to develop their thinking abilities or logical thinking, but they are not used to thinking critically about school systems, teachers as older and more experienced persons or existing knowledge described in official textbooks. In this Japanese education culture, it seems to be difficult to think of children as active agents or active citizens. However, in 2017, all national guidelines from early childhood education to secondary education were completely revised, and some new concepts were introduced such as 'proactive, interactive and authentic learning' and 'curriculum management'. This revision will change traditional Japanese education culture in the future.

The term 'care' has various meanings. In early childhood settings, teachers care for children. In Japan, there are three guidelines (national curriculum) for early childhood services: course of study for kindergarten (age 3–5), guidelines for care and education in nursery centres (age 0–5), course of study for centres for early childhood education and care (age 0–5). Descriptions about teachers' care for children appear in the latter two guidelines. The Japanese guidelines require children to develop care about various things, such as animals, plants, people, materials and their own body.

Furthermore, Japan is frequently described as a collectivism- or groupism-based society, although this has been changing gradually in the modern era [31]. Cross-cultural psychologist Nisbet [32] revealed differences in attention, perception, cognition and social-psychological phenomena, such as the concept of self, between the Western and Asian cultural group. It might be specific to Japanese national curriculum describing the term 'friends' 16 times, and children are always required to care about other children, which encourages children to always think of others and recognise themselves as a part of a group.

5. Discussion and Conclusion Based on Comparison of Key Concepts across the Three Countries

None of the curriculum documents mention sustainability or environmental education as a standalone term, although the term 'environment' is frequently used in the curriculum. In Japan, there is a focus on learning environments which come to include physical and natural environments. In contrast, in India and China, the learning environment is seen as a physical space. For the three countries, environment is basically used as a term of pedagogy and does not mean the natural environment as a target of respect or protection in this Anthropocene Era.

The term 'nature' was also used frequently with all three countries providing similar views of nature—something that is 'out there'. Our countries have long traditions of living harmoniously with nature. One of the reasons might come from the fact the cultures of our countries have been influenced by religions such as Hinduism, Buddhism, Confucianism or Shintoism, which have different characteristics from Christianity. On the other hand, we did not hesitate to destroy nature during and after the Second World War, or the need for economic development. There is a traditional view of nature, therefore, that also sees nature as a resource that is meant for human use (and abuse), similar to the Western view of nature, when the times warrant. This perception of nature is probably one of the reasons why these countries have serious environmental problems and where sustainability is seen as anti-development. While there is some mention of nature-based learning, there is not a strong

emphasis on this, but rather a superficial mention. Positioning 'nature' as a tool of teaching for children is a key issue that crops up in this work. This resource-oriented approach then leads to a disconnection between humans and nature. For building a sustainable society, a view of nature that goes beyond an economic tool towards a more holistic approach is absolutely necessary. The present education system that promotes nature merely as an educational tool for children's development leads to more harm. It will be beneficial for the entire global audience to adopt the understanding that nature goes beyond a basic teaching tool into an entity of its own. One possible answer might be the fact that education systems and pedagogy themselves have been imported from the West and have not originated in each country, and rethinking indigenous and non-Western perspectives might provide an opportunity to look beyond this resource-oriented approach [8]. On the other hand, we have to clarify why our Asian traditional view of nature could not contribute to prevent various environmental issues in each country. As for Japan, looking into Totman's works on the history of the Japanese forest and environment [33,34], it seems that the so-called 'Japanese traditional view of nature' did not function as a deterrent against the destruction of the natural environment. We may need a new view of nature for a sustainable society.

Care was a strong element in all the curricula. How this term was seen, however, differed in each context. In India, 'care' was basically used in terms of giving and nurturing relationships with parents, peers and teachers and also taking 'care' of belongings and property, with one mention of taking care of and protecting the environment and its relationships. In Japan, care was an emphasised in a similar way with connection to peers. In China, 'care' was seen in a similar context but also including taking care of nature and the environment.

Regarding children as participants with agency and voices, in all three countries, the view of children is as an individual, yet they are not seen as mini-adults. While curiosity and care are promoted in each of these cultures, there is a very different understanding of what their voice and agency means. Children actively participate in grown-up activities and are encouraged to be part of the overall system, yet there is a clear understanding that the adults make the rules and children learn to follow these and learn from them. The notion of 'independence' is also understood very differently. The emphasis is on moving towards 'self-reliance' rather than 'independence' from adults or society. The duty of care—whether it is towards one's family, friends or society—is deeply embedded in these three cultural systems.

The term 'critical thinking' is also viewed very differently in each of these contexts. To a large extent, this is almost a philosophical shift in what 'critical thinking' means in these cultures, which can in fact come with some negative connotations. Children in these cultures are encouraged to follow elders, learn from centuries-old traditions and adapt these to modern society. The notion of 'critical thinking' in Western perspective in terms of questioning or arguing about these traditional knowledge systems is not promoted or encouraged in these education systems. All three cultures have strong hierarchical systems with clear decision-making roles for adults. These authoritative structures mean children are not allowed to challenge adults or critique their decisions. In many ways, children are taught (indoctrinated) to follow the authority systems from an early age, which, according to Bourdieu and Passeron [35], is the reproduction of dominant social structures.

6. Concluding Remarks

The study showcases the many opportunities within curriculum settings in India, China and Japan that could be harnessed to provide a different view of ESE. The colonial nature of our education system means we have imported the education systems, including theoretical and pedagogical views of education. A shift to strengthening the cultural roots, while at the same time being mindful of the influences of Western philosophies and resource-driven mindsets would provide opportunities for a more holistic approach to education. This consequently provides impetus for a global call for recognising similar in-

digenous cultural perspectives when shaping key policy documents, including the national curriculum content.

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Appendix A

Table A1. Description of key concepts in national ECE curriculum.

Key Concepts		China		India		Japan	
		N [1]	How It Is Mentioned	N	How It Is Mentioned	N	How It Is Mentioned
Environment	Learning environment/ educational environment	25	Physical and social environment in the KG Friendly and warm environment for children Children learn to adapt to it Teachers create rich and engaging educational environments	25	Mainly about surroundings, pollution, patterns Physical space/place that needs to be organised, child friendly Daily routines and design of the place	29	Learning environment Materials, friends, teachers, nature, society Early childhood education is "education through environment" which is created by teachers.
	Natural environment	1	Children experience, discover beautiful things in natural environment	2	The outdoors as something to explore and manipulate Mentions birds and animals as a theme or concept for teachers	1	Free physical activity and play in a natural environment stimulates the development of bodily functions
	Sustainable society	0	NA	0	NA	1	Children as builders of a sustainable society in the future Fostering the base for this during early childhood
Nature	Nature (natural world, natural factors)	19	Have knowledge about it Appreciate it Experience the dependent relationship between human beings and nature Love, respect and protect it	19	Mainly as colours patterns and aesthetics	16	Lead a life close to it Being aware of its grandeur, beauty and wonder Be familiar with it To foster a sense of attachment and awe toward these things, as well as a respect for life, a spirit of social responsibility and An inquisitive mind
	Nature (basic quality or character of something)	3	Have knowledge, e.g., understand the relative nature of capacity	13	Exploring nature and opportunities in nature	2	Understanding the nature of things
	Animals and plants	6	Have knowledge about them Experience humans' relation with animals and plants Attend to them	6	All mentions are within examples for a theme that teachers can use in their routine	5	Be familiar with them to acknowledge, respect, appreciate "life"

Table A1. *Cont.*

Key Concepts		China		India		Japan	
		N [1]	How It Is Mentioned	N	How It Is Mentioned	N	How It Is Mentioned
	Season	6	Have knowledge about them Experience the changes of them and know how to make changes accordingly	2	As examples of a possible theme	3	Being aware of changes in nature and in people's lives
	Outdoor	18	Participate in outdoor activities	18	Play, activities and interactions	2	Playing outdoor Place for children's interest and curiosity
Critical thinking	Critical thinking	0	NA	1	Develop critical thinking as part of cognitive development	0	NA
	Thinking	6	Support children's thinking Logical thinking Visual thinking	13	Thinking as cognitive development including sequential and higher order thinking	5	Thinking and acting independently Sharing thoughts with friends and understanding what friends are thinking
	Curiosity	8	Arouse and protect children's curiosity Children being curious	7	Educators promote curiosity Children are curious Curiosity important for learning	15	Curiosity about health, various kinds of things, the concepts of quantities and diagrams, simple signs and written word
Agency & Voice	Agency	0	NA	2	Voice is used as meaning talking voice not opinion/say	0	NA
	Voice	6	How to use their voice	2	As in speaking voice and tone	0	NA
	Independent	6	Make independent choices Be independent to take care of themselves	4	As part of development stage where children act as independent Not about promoting independence	12	Voluntary Independently maintain a healthy and safe life Fostering self-reliance and developing voluntary activities It is important for teachers to encourage children's voluntary activities in various ways
Children Rights	Children's Rights	0	NA	1	Inclusive education and the shift in special education from a medical model of care to a model of children's rights	0	NA
Care	Teacher's Care of children	19	Take care of children	6	Taking care of the development needs and well- being of the child and the child in general Teachers are caregivers translates into providing care	0	NA
	Children's care for/about/of		Children learn self-care skills Guide young children to show respect and care for the elderly and people around them, and respect for others' work and its results	38	Mentioned as respect and care for elders, parents and teachers and care of common facilities.	2	Care of common play equipment and apparatus Treating their surroundings with care

[1] The number of mentions of the term in the reviewed policy documents.

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Peer-reviewed article

Knowing-with-snow in an outdoor kindergarten

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Abstract
This article highlights how reciprocal relationships between children and the environment can contribute to exploring understanding of children's learning in the outdoor environment. We draw on data from a kindergarten in the northern part of Norway, where we have carried out fieldwork three hours a week from October to mid-May. During this period, the outdoor area was covered with snow of varying qualities. Snow and weather conditions are included as elements in a relational understanding, in which the environment is understood as open and dynamic – an interaction between past and present, between geography, materiality, people and the 'more-than-human'. The learner and the environment are understood as an indivisible process, where different elements exercise a reciprocal influence on each other. Using Ingold's concept of *correspondence*, we explore how children learn by being *within* and *with* the world. The article is a contribution to creating a nuanced understanding of children's learning and the educator's role within an outdoor environment in kindergarten practice.

Keywords: *children; correspondance; kindergarten; outdoor learning*

Sammendrag
I denne artikkelen vil vi løfte frem hvordan gjensidige relasjoner mellom barn og omgivelser kan bidra til å utforske forståelser av barns læring i barnehagens uteområde. Vi tar utgangspunkt i data fra en barnehage i den nordlige delen av Norge, hvor vi har gjort feltarbeid tre timer i uken fra oktober til midten av mai måned. Uteområdet var i denne perioden dekket av snø med ulike kvaliteter. Snø og værforhold inngår som elementer i en relasjonell forståelse, hvor omgivelsene blir forstått som åpent og dynamisk – en sammenkastning mellom fortid og nåtid, mellom geografi, materialitet, mennesker og 'more-than-human'. Den lærende og omgivelsene forstås som en udelelig prosess som virker sammen, hvor ulike elementer gjensidig påvirker hverandre. Ved anvendelse av Ingolds begrep *korrespondanse* utforsker vi hvordan barn lærer ved å være *i* og *med* verden. Artikkelen er et bidrag til å nyansere forståelsen av barns læring og pedagogens rolle i utendørs omgivelser i barnehagens praksis.

Nøkkelord: *barn; barnehage; korrespondanse; utendørs læring*

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Vignette

It is mid-November. Some half-metre of loose and fluffy snow is lying on the ground. An extremely cold period has led to the formation of snow crystals of about 1–2 cm in the top layer of snow. Vilde (4 years old) and the researcher, Pernille, are walking together along a trodden-down path through the snow in the kindergarten's outdoor area. Vilde stops and looks down at the big snow crystals. She sits down, leans forward, and puts out her tongue towards the topmost layer of snow. The snow crystals attach themselves to her tongue. She smacks her lips and says: 'I think that's good. Do you know what a snow crystal tastes like?'

Introduction

What does a snow crystal taste like? Children engage with the world through exploring: tasting, climbing, crawling, creeping, sitting down and rolling around, smelling, and touching (Cele, 2019; Änggård, 2016). This sort of involvement provides children with direct experiences of their environments, which serves to create meaning (Ingold, 2000). In the opening vignette, Vilde experienced the taste of snow crystals through her sensuous encounter with snow. This article considers such encounters as reciprocal relationships in which the child and the environments are understood as inseparable processes that work together. This is a contribution to depicting how knowledge emerges through all relationships of which children are a part. The article examines the question of how children's encounters *in* and *with* their surroundings can be understood and valued as learning processes.

To shed light on this question, we will focus on children's direct encounters with their surroundings in the outside areas of the kindergarten. Learning *with* and *in* addresses the children's ways of being in the world (Ingold, 2000; Myrstad & Sverdrup, 2019; Springgay & Truman, 2018), in which the learner is entangled with diverse aspects of their social, physical and (im-)material surroundings through large and small movements. We refer to the interaction of a kindergarten child with a snowy landscape: how their feet move in the snow at the same time as the snow moves the feet, or – as in the above vignette – how the snow crystals touch the tongue, and the tongue touches the snow crystals. Tim Ingold's concept of 'correspondence' is used as a theoretical tool to highlight this kind of reciprocal relationship between children and their environments (2013). In a reciprocal relationship, changing environments and weather conditions will form nuances of significance for how children's knowledge emerges with nature as a 'co-teacher' (Blenkinsop, 2018).

Our empirical basis is derived from an outdoor kindergarten in the northern, Arctic region of Norway. In these surroundings, kindergarten children and staff spend time outdoors, irrespective of weather and season. The area is snow-covered for several months, usually from the end of October until the middle of May. After heavy snowfalls, the landscape is transformed into a landscape of snow in which former nuances, details, and points of reference on the ground vanish. The snowscape can be regarded metaphorically as a clean sheet (Myrstad et al., 2020). Taken literally, the snow defines mobility, visibility, and accessibility for activities (Eira et al., 2018). We will

initially refer to examples of how kindergarten children get involved in, explore, and learn in this snowscape. Subsequently we will discuss how educators can appreciate and draw attention to such processes.

Background

Outdoor play and activities in the kindergarten and the surrounding natural landscape form an important part of kindergarten practice in the Nordic countries. This is rooted in a general Nordic kindergarten model in which children's self-initiated play and activities in varied outdoor surroundings are recognised as a part of the child's holistic learning (Halldén, 2011). Holistic learning means that a child's experiences, attained through body, movement and all the senses, all form a basis of learning processes. This is reflected in various ways in the Norwegian kindergarten curriculum (Sandseter & Lysklett, 2017). The Norwegian Framework Plan for the content and tasks of kindergartens (Ministry of Education and Research, 2017) places emphasis among other things on the kindergarten enabling children to experience and explore diversity in nature. A relationship with nature is rooted in both Norwegian and Sami culture, where the natural environment has been, and remains, an important element in people's everyday life (Fasting, 2019; Myrstad, 2021). However, the Nordic kindergarten model, with its holistic approach to learning, finds itself under pressure.

Recent years have seen an increased focus, national and international, on learning in kindergarten (Biesta, 2013; Bingham & Whitebread, 2018; Pettersvold & Østrem, 2018). There is a tendency towards greater emphasis on cognitive development and academic skills relating to future schooling. This kind of learning pressure can occur at the cost of children's self-initiated and creative activities as a basis for learning (Ødegaard, 2021). A growing industry of standardised programmes and learning packages developed by commercial bodies can also lead to a lack of contextuality in understanding skills and knowledge and to children's interaction with their environments being neglected in favour of a standardised kindergarten content (Nygård, 2017). One way of resisting this tendency is to regard knowledge and exploration as relational processes in which learning is viewed as active, creative processes based on children's bodily and sensuous interaction with their surroundings. In order to develop the Nordic kindergarten model, Ødegaard (2021) promotes the idea that exploration should be brought to the fore and recognised as part of the signature pedagogy in the kindergarten. Creating a more nuanced view of children's interaction with their surroundings can help to broaden understanding of children's learning in this type of exploratory pedagogy.

Children's dynamic relationships with their environment

Gibson's affordance theory has been instrumental in describing the significance of children's direct contact with their environments (Fjørtoft, 2001; Kyttä, 2003;

Sandseter, 2009). The affordance theory depicts how the physical environment in which people spend their time invite various actions and activities (Gibson, 1979). Kyttä (2003) uses this perspective as a basis for assessing whether environments can be considered child friendly. Sandseter (2009) highlights how different qualities and elements in outdoor environments provide children with opportunities to test boundaries and explore risks. Risky play is presented as an important element in the development of children's physical and mental health. This type of play is generated especially in an outdoor setting (Sandseter, 2009; Sandseter et al., 2017). Sandseter, Storli and Sando (2020) highlight the dynamic between children's play and their environments, showing how the child deploys the outdoor area of the kindergarten in line with their individual needs, intentions, and physical prerequisites. Sanderud, Gurholt and Moe (2019) show how children, through self-initiated play and activities in a winter landscape, create an understanding of themselves and of nature, suggesting that the skills developed by children during this interaction form part of their formation and lifelong learning.

Affordance theory is rooted in ecological perception psychology, in which the interaction between the individual and their environments is regarded as a dynamically interactive system. Gibson (1979) points out that perception is primarily directed towards people recognising affordances in their environments, before employing them. It is the perception of functionality and opportunities for action that are primary here. Objects appear as affordances in terms of things that can be tasted, lifted, hidden, slid on, and so on (Myrstad & Sverdrup, 2016). In affordance theory, people are the active agents, able to exercise an influence upon and change their environments.

In the quest for sustainable practice, the relationship between children and nature has been afforded increasing interest in the light of post-humanistic and new-materialistic theories. To a greater extent than in affordance theory, focus and attention is directed towards reciprocity in the dynamic interaction between children and a 'more-than-human' world (Comber, 2013; Malone, 2016; Myrstad et al., 2020; Somerville, 2015; Taylor & Pacini-Ketchabaw, 2015). The learner and the environment are understood as an indivisible process, where different elements exercise a reciprocal influence on each other within a common world (Taguchi, 2010; Taylor & Giugni, 2012). This understanding of an entangled world does not distinguish between people and their environments. This entanglement brings together ecological, socio-cultural, and material relationships. This might include the surface under our feet, the sky above our heads, the strength of the sun's rays, vegetation, the air being breathed: everything that living organisms absorb through life in the world (Ingold, 2011, p. 95). Relationships are key here, rather than people's intentions and functionality. A reciprocal relationship accommodates more parties than the human-social context, representing a challenge to the exclusive position of humans as active agents in the world (Blenkinsop, 2018; Dernikos & Thiel, 2019). These perspectives contain echoes of deep ecology as well as of Indigenous philosophy in

which people and nature are regarded as relational beings (Absolon, 2010). Ingold's term 'correspondence' can be understood in the light of relational perspectives of this sort and can help fill out ideas of how children's learning emerges through being *in* and *with* the world.

Correspondence – responding and being responded to

Tim Ingold's correspondence concept can be used to highlight how children and their bodily movements constitute their environments and create knowledge. According to Ingold (2013) knowledge is not transferred as a package from one person to another, such as from educators to children or from one generation to another. It is rather through an individual's direct contact with their environments that knowledge grows and gradually becomes part of the person. Ingold regards this as a 'dance of animacy' between people and their environment (Ingold, 2013, p. 100–107). The aim of participating in this 'dance' is not to overcome, but to tune into and respond to the environment (Ingold, 2013, p. 7). Rather than seeking cause and effect between human and non-human parties, we should go beyond these binary ideas and look at this interaction as a life dance (Hackett, 2018). Taking a craftsman's work with his materials as an example, Ingold (2013) argues that the material changes as the craftsman works on it. The form of the material, such as clay, or in our case snow, is generated in a field of influences involving individuals, materials, and the environment in general (Ingold, 2013, p. 26–28). Weather, temperature, light, humidity, wind, and airborne particles are forces that affect the material at any one time. This means that when we encounter a material, 'it is matter in movement, in flux, in variation' with the result that 'this matter-flow can only be followed' (Deleuze & Guattari, 2004, p. 450–451). The material world is not static and unchangeable but is subject to change when it is entangled with other elements (Powell & Somerville, 2018). The active parties – the ceramicist that responds reciprocally with the clay, or the children who respond with the snow – must follow the dance with the material (Ingold, 2013). This is a way of tuning in to the 'language' of the material world, moment by moment. Unlike a material-technical interaction, correspondence with the world does not involve describing it or representing it, but responding to it (Ingold, 2013, p. 108). Repetitive sensuous and bodily movements in conjunction with a material allow gradual experience and knowledge to grow. This learning is not individual or cognitive but is generated through relationships.

Ingold proposes a close connection between the correspondence concept and attention. To correspond with the world entails being attentive (Ingold, 2018, p. 30). According to Masschelein (2010) attention involves opening to the world. He writes: 'Attention is precisely to be present in the present, to be there – in the present – in such a way that the present can present itself to me […] As such, attention makes experience possible' (Masschelein, 2010, p. 48).

Attention is concerned with being fully present in the moment and responding to what is occurring in the here and now. It is attention, a sensitive presence, that yields

action (Brooke, 2021). In this kind of understanding, engagement with the world is attentive rather than intentional. Engagement is not created in a world that is fully constructed but leads out into a world in creation. Attention thus acts to enable encounters with one's surroundings without intentions of functionality (Rautio & Stenvall, 2019). According to Ingold (2000), this means that it is not necessary to involve mental constructions to be able to act in the world. People do not act in a fully constructed world but contribute to constructing it by means of direct involvement. This perspective promotes a view that everyone, including children, is an active co-creator of the world (Myrstad, 2018).

The concept of correspondence clarifies how human learning is sensuously and bodily entangled with the environment. The concept can serve as an approach to raising awareness of sensual impressions other than hearing and vision and can maintain children's bodily and sensuous methods of exploring the world. The approach can be regarded as an alternative to a pedagogy rooted in knowledge transferring and can help expand ideas of what children's learning and the role of the teacher can involve in a kindergarten context.

Methodological approach

The data have been gathered in connection with the project BarnSted, which is part of KINDknow – Kindergarten Knowledge Centre for Systemic Research on Diversity and Sustainable Futures. In this project, the focus is on children's encounters with different components in their local environments. Based on our micro-field work from an outdoor kindergarten, we refer, for instance, to children's encounters with snow. The kindergarten is in a semi-urban area on an island in the north of Norway. We took part in the outdoor periods in the area around the kindergarten for half a day each week from October to May, involving some 200 hours of field work in all. The outdoor area in question is varied, with upward and downward slopes, marshland, trees, bonfire sites and a traditional Sami tent called a *làvvu*. From October to May the ground was covered in snow of varying consistency and depth. The project participants consisted of 22 children aged 3–6 years, four members of educational staff and two researchers.

During our field work we were participating observers, either with or without a video camera. Our participation meant that we involved ourselves in the children's activities, got to know them and shared experiences through these processes (Ingold, 2018). Our observations consisted of attempting to see, hear and get a sense of what was taking place. We were inspired by the 'deep hanging out' method (Powell & Somerville, 2018, p. 850), which entailed waiting for the children to take the initiative to invite us to play and to move together with them, have conversations, and so on. This is a 'practice of curiosity' in which we explore together (Haraway, 2015, p. 5). According to Haraway (2015), curiosity can grant participants unimagined possibilities and lead to unpredicted situations. We have accompanied the children in their

encounters with the snow and involved our own bodies to 'find ways to know-with' (Salmela & Valtonen, 2019, p. 19). We have waded in the same snow, felt the cold on our bodies and the warmth from the bonfire and were exposed to wind and weather in the same way as the children. This presence was the basis on which we shared experiences and engagement with the children (Johansson & Løkken, 2014, p. 51). This sharing of experiences can be understood as an interweaving of experiences, such that it can be regarded as a correspondence.

During the first few months we took part without a camera and established a relationship with the children and the staff. After repeated meetings the children showed trust in us and expectations of us as 'different' adults. Our presence, both with and without the video camera, meant that some of the children took us along with them as they moved across a larger area, or stayed for a long time in one part of the grounds. On some occasions the children turned their backs on us and walked away. We took this as a signal that the children did not want our presence, and we respected this. When using the video camera, a handheld camera with an open display was used by the researchers and held at the children's height. This prevented our faces from being hidden behind the camera, allowing us as researchers to communicate with the children and staff (Myrstad et al., 2020). The video camera thus functions as a third eye instead of being the only eye (Sinding-Larsen, 1992). We have consistently avoided using zoom during the video filming, specifically in order that the children were always able to see what the lens was pointing at. This gives them an element of choice about how they will relate to the camera. This is particularly significant in relation to children's opportunity to acquiesce or refuse to be filmed (Myrstad, 2009). Even though the parents have given informed consent to the research and video filming of their children, we have an ethical responsibility as researchers to meet the children with sensitivity and respect. For us, this has meant that video filming and participation in some circumstances was interrupted due to ethical considerations.

The data material consists of field notes, weather observations and video clips. Selected video clips were shown regularly to the staff as a basis for conversations and reflection. The data material used in this article consists of transcriptions from video clips from our joint field work.

Analytical techniques

We have repeatedly reviewed the data material and combined video clips with weather reports and field notes. When reviewing the video clips, we have recalled our physical and sensuous experiences (Pink, 2009) while reflecting over what has been captured through the lens. The basis of our analysis has been to explore how children's bodies, through their movements and senses, 'reciprocate' with the environment. This mutual process is constant. This is particularly clearly visible in the data material in terms of snow conditions that are shaped by children's movements, while at the same

time shaping those same movements. The first two examples in the article have been chosen to illustrate this reciprocal correspondence. The final example demonstrates how an educator and researcher mediate the children's correspondence in their direct contact with snow.

Moving across a fragile snow crust

It is 10th May and some parts of the kindergarten's outdoor area are free of snow, while there is still 15 cm of snow in the shaded northern-facing slopes. During the past week, the average snow depth has reduced, according to the weather forecast, by nearly 20 cm, disappearing altogether in some places. The snow is rotten, but the sharp cold at night has formed a thin crust that will bear a light weight. Researcher Pernille is together with two children, video filming the children as they make their way up onto a small, snow-covered area.

> Nina (5) and Rasmus (4), wearing rain clothes and Cherrox boots, are walking towards an area covered in snow. They each have a spade in the hand. Rasmus jumps down onto the snow-covered area, landing on his knees, and digs in the snow with his spade. When Nina begins to move down the snowy slope, Rasmus too stands up and starts walking. The crust supports his weight only for the first three steps, after which he begins to sink through it every time he puts his right foot down. "Ah! I'm sinking so deep into it!" he says to Nina. He takes a step with his left foot and then carefully puts his right foot down. The crust holds. He remains standing for a couple of seconds before continuing across the snow and balancing on the crust with light steps.

May snow has varying qualities, depending on the daily temperature, location and sun and wind conditions. On the snow's crust, Rasmus needs to adjust his bodily response to the unstable snow from step to step. The snow initially gives way under Rasmus' weight, with his right foot penetrating the crust several times and sinking through the rotten snow before reaching solid ground. His response is both verbal and physical. It is physical in the sense that he adjusts his movements by leaning to the side and placing his body weight more on the left side. Because most of his body weight is on the left, Rasmus' walk acquires a limping rhythm. This movement is related to the snow – a surface that varies with every step that Rasmus takes. His adjustments are a direct response or 'reply' to how the snow is responding to his movements. When the crust responds by giving way to the weight of his steps, Rasmus responds by distributing his weight differently. Rasmus' movements thus transcend the individual, being shaped in relation to a varied snow cover.

Wading through deep snow

This example is from a video clip from the 8th of November. The weather forecast from the Norwegian meteorological service Yr.no shows a snow depth of 65 cm and a temperature of –8°C. The previous week has seen around 30 cm of new snow. The area beside the kindergarten has not been visited since the previous week's snowfall

and there are no visible signs of activity in the snow. It is just before the children's lunchtime.

> Erik (4) rolls down a short steep hill and lies on his back in about 30 cm of new snow. Researcher Anne is accompanying Erik and following him with a camera. A member of staff calls that all the children must come to the assembly point to return to the kindergarten. The boy takes aim and throws himself over to one side, before getting up with the aid of his arms, which have sunk some way into the snow. Upright, he takes a few steps, for which he lifts his knees and thighs to almost a 90° angle, while leaning forward. 'I can always walk in deep snow', he says. When he reaches some twigs, his foot sinks far down into the snow. His body follows his foot, and he leans his upper body to one side to regain his balance. He continues up the hill that he rolled down, walking in his own 'rolling tracks' while his feet slip. He creates new tracks so that his feet reach solid ground and can get a grip. The foot that he places weight on sinks down through the snow again and he slips once more. He takes a break and looks back at Anne. Erik focusses on the foot that has traction, leans forward, and takes a few steps, lifting his knees high up above ground level. He takes another three steps and then takes a break. In the steepest section he pauses after every other step.

Erik's goal appears to be to make it up the hill, but the snow is providing resistance that affects his direction, rhythm, and mobility. With every step, Erik needs to tune in and respond with bodily movements to the varied conditions underfoot in the deep snow, which in places reaches right up to his thigh. Erik follows the 'dance' (Ingold, 2013, p. 108) with the forces of the snow, created by the wind, light conditions and earlier – but now invisible – tracks under the snow. The snow's quantity, depth and consistency, topology and gravity all work together with Erik's physical movements. Together, these affect the direction in which Erik's body moves and what tracks he leaves. The resulting tracks do not lead in a straight line but show how he was driven forwards and backwards in the snow. Gravity in the upward slope and in the snow influence the rhythm of Erik's movements. It is physically heavy to lift the whole of one's foot while the upper body is leaning forwards and the arms projected outwards to maintain balance. This means that Erik must take breaks several times and his pace gains a staccato rhythm.

Exploring snow crystals

This example comes from a video take on the same November day as the above example. Children, staff, and researchers are on their way from the outdoor area into the kindergarten. Researcher Anne walks along the trodden-down path together with an educator and three children (two boys – Kåre and Per – and a girl – Mia – all of them 4 years old). The cold has led to the formation of snow crystals underfoot and these have fastened themselves around straw and twigs.

> The two boys are in the lead. They halt at flat ground to wait for the others. The educator, who is walking behind them, points, saying: 'Look at the frost on the straws!' The educator bends down, removing his gloves, and puts some snow crystals into his hands. Kåre and Per kneel and bend over the straws.

The children and researcher say at the same time: 'Oh!' The educator puts some flakes of snow crystal onto Kåre's mitten.

Kåre puts out his tongue, puts the snow crystals in his mouth and says: 'Mmm.'

Educator: They're huge!
Per: Can I have one?

The educator gives Per some snow crystals, adding: 'Why are they like that, do you think?'

Kåre replies 'Because it's so cold.'

Educator: Because it's so cold, but what makes it cold?
Researcher: They were so pretty as well.
Mia: They were so pretty.
Researcher: There's more over here. I'll have to get a picture of them.

Everyone moves a bit further over the flat ground to some other straws.

Educator: All the straws are full.
Researcher: Think that every snow crystal is different, just imagine it!

The two boys crouch down in the snow and take hold of the straws.

Per: We can just eat them.
Researcher: Can you eat them as well, oh?

Per takes the straw with the snow crystals over to Kåre, who is sitting with his tongue sticking out.

Kåre: Ouch, they're so sharp!
Researcher/educator: Are they sharp, too?

Kåre bends right down to the straws, sticks his tongue out towards the snow crystals and says 'Oouch!'

Per removes snow crystals from the straws with his mitten, before putting the crystal-covered mitten to his mouth.

Per: Why are they so sharp?

Per has crouched down and put out his tongue three times to get a snow crystal in his mouth.

Kåre: Don't know.
Per: Perhaps because they're so frozen?

In this example, time and space have been dedicated to stopping and exploring the snow crystals that have formed on the straws. The educator directs the children's awareness towards the snow crystals. Out of enthusiasm to transmit knowledge and values to the children, the educator asks questions the answers to which are familiar. The researcher comments about aesthetics and qualities, depicting the aspects that can be valued about the snow crystals. Educator and researcher both base their comments on previous knowledge and experience that they are sharing with the children. The children's sensuous, direct encounter with the snow crystals, however, provide

access to another source of knowledge. For instance, the touch of the tongue against the snow crystals provides the children with an insight into the sharp texture of the snow crystals. This correspondence indicates that the children's direct engagement with the snow crystals can generate a different type of knowledge than that focussed on by the researcher and educator. This kind of sensuous, spontaneous experience cannot be taught directly by the educator or researcher. The surroundings are functioning here as a 'co-teacher' (Blenkinsop, 2018).

Discussion: Learning in and with snow

The first two examples illustrate how forces in the snow influence the rhythm and flow of the children's movements. In that the local environment is affected by seasonal variations, the children and the snow are not the only relevant factors: the interaction includes other children, the researchers, the camera, the temperature, precipitation, air humidity, light conditions and choice of clothes and footwear. Walking on, touching, and tasting snow are ways of showing awareness of the world – of being fully present in the moment. In their encounters with the various snow conditions, the children interact with the terrain, the path, the wind, gravity, the texture, and consistency of the snow and with other elements. They focus their awareness on what they discover in the encounters by tuning in and responding through their large or small movements (Ingold, 2018). At the same time, the way the surface underfoot responds to the children's movements is a determining factor in shaping the next movement. In a correspondence of this sort, the ground is more than just a passive background, a space available for activity. Moving in this way can be regarded as a collective action between 'human' and 'non-human-others' (Hackett & Rautio, 2019), and as something more than a phenomenon related to children's intentional actions.

The concept of correspondence can be a tool for examining the learning that takes place during these reciprocal processes. We regard this as a form of in-depth learning that is concerned with tuning in and responding to the forces within which the child is entangled. The goal in this kind of reciprocal interaction is not to overcome the environment but to master a sensitive interaction with it. Knowledge is generated slowly and gradually, is open, relational and is formed when the children's movements follow the flow in the snow (Ingold, 2013). This kind of knowledge is difficult to quantify, standardise, or generalise. It is learning that is constituted by being *in* and *with* the environment, rather than through individual cognitive learning *about* the environment (Ingold, 2018; Taylor, 2017). In the light of an integrated view of holistic learning, the concept of correspondence can be a means of identifying and describing how bodily and sensuously acquired knowledge emerges as a part of a child's exploration *in* and *with* the world. It is important to highlight and value this sort of learning and knowledge on equal terms with cognitive and academic skills, even though it is not always functional or internal – but rather unpredictable, improvisational, and in becoming (Harwood et al., 2019).

A stated pedagogic goal for the kindergarten is to enable an exploratory practice (Ministry of Education and Research, 2017). Questions could be raised about whether the educator and researcher in the final example are genuinely exploring together with the children or whether they are subconsciously assuming the role of better-informed adults who are expected to be teaching. In the examples with the snow crystals, the researcher and educator have an opportunity to acquire information beyond their existing knowledge, but this is not much exploited in this instance. This can point back to a traditional pedagogy role in which the educator's intention is to transfer already-established knowledge to the child (Ingold, 2018) in the form of transmitting academic and conceptual learning. A greater focus on the relationships between children and their environments will require being open to the opportunities inherent in unpredictable and ambiguous circumstances and can help to go beyond the boundaries of traditional learning practices (Powell & Somerville, 2018, p. 3).

Children's correspondences with their environments will occur whether kindergarten staff or researchers are paying attention to them at the time. This may seem like an echo of the romantic notion that children learn, experience things, and gain mastery simply by existing undisturbed in nature. We nevertheless promote the significance of appreciating and paying attention to the kind of physical and sensuous interactions we have described, simply because they can generate other skills and understandings. The concept of correspondence can be a tool for identifying these processes, which will otherwise be ignored or overlooked. In terms of kindergarten practice, this will primarily entail setting aside time and space for the emergence of this kind of interaction (Myrstad et al., 2020). A further step in terms of pedagogic practice as well as in a research process would be to question where the focus of attention lies and what consequences can derive from redirecting awareness from the individual to relationships (Brooke, 2021, p. 187).

Paying attention to correspondence is about more than just observing. It is a matter of participating, in the form of being open to learning and exploring together with the children (Ingold, 2018, p. 61). In situations that are driven by children's exploration, as in the instances with the snow crystals, this requires that the researcher and educator keep their knowledge to themselves and do not direct what is to be appreciated or paid attention to (Green & Somerville, 2015). In this kind of perspective, the educator's role will be to lead the child out into the world and to participate in their exploration, rather than transmitting information *about* the world to the child (Ingold, 2018). This approach to teaching and learning is a reminder that learning can be more than simply transmitting predefined knowledge (Myrstad & Sverdrup, 2019). Highlighting these processes as significant can be an element in what Ødegaard (2021) identifies as the signature pedagogy of the kindergarten, in which exploration is the primary feature in developing sustainable practices. The development of a sensitive interaction between people and their environments has been described as key to the development of sustainable perspectives (Lynch & Mannion, 2021; Powell &

Somerville, 2018). In the light of this, the concept of correspondence can be a tool with which to explore sustainable practice in the kindergarten.

By viewing children's learning as something that is entangled with their environments, the complexities of how they experience the world will be made more visible (Gallacher, 2016). The world – or in this instance the snowscape – is in formation, as new relationships arise between other living organisms, between weather and conditions (Thompson, 2014). This complexity allows us to capture a diversity of relationships of which people and children at any one time form a part (Myrstad, 2018). The perspective also highlights the significance of giving children opportunities to experience varied landscapes and different seasons and weather conditions when provision is made for children to go their own way and to be co-creators of their own knowledge. Given an attitude that everybody can learn in a learning situation, even educators and researchers can acquire new knowledge and understanding through such encounters. And in this way, we can perhaps find the answer to what a snow crystal tastes like?

Conclusion

Enabling children to learn *in* and *with* their environments requires an acknowledgement that knowledge is not the exclusive domain of humanity (Weldemarian, 2020), but can also be acquired in the correspondence between different elements of our surroundings, by means of large or small physical or sensuous encounters. The concept of correspondence can help educators perceive such learning processes and thus to explore and value them. For educators, this can entail a shift in attention from the child as an individual towards what occurs in the relationship between the child and their environments. This is a dance of life, which over a period can provide a deeper understanding of how individuals and their environments are entangled in a common world.

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Visualizing a Common World of Entanglement through Multiple Viewpoints

Visuality Design in and for Education

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Abstract

The authors explore how multiple viewpoints can challenge our habitualised way of viewing and expand the area of thinking about children's outdoor learning. They draw on micro-fieldwork in a Sámi kindergarten in Arctic Norway. There, learning through participation and practical experiences is a traditional strategy in child rearing. This method of learning is currently being transformed in Sámi kindergartens, wherein the goal is to *strengthen the Sámi language, identity and culture*. The authors' aim is to explore how learning through participation in pedagogical practices could be made visible by employing different viewpoints. They used GoPro® cameras worn on children's bodies, combined with their own gaze, as well as a handheld video camera used by one of the authors. Such a combination of viewpoints allowed gaining an insight into the complex outdoor kindergarten practices. Drawing on Jayne White's polyphonic dialogical approach to video, the authors placed these diverse viewpoints in a dialogue during the process of analysis. These dialogues revealed our pre-defined human-centric view and effected a change in our theoretical approach, from socio-cultural learning theories to new materialist theories, to include the premise that children learn in all interactions and entanglements that they are part of in a socio-material world.

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Keywords

visuality design – human-centric-gaze – multiple viewpoints – outdoor – Sámi kindergarten



FEATURE This article comprises a video, which can be viewed here.

– This article is part of the special topic 'Visual Worlds of Education as Research Designs', edited by Åsta Birkeland, Liv Torunn Grindheim and Chang Liu.

1 Introduction

Technological innovations, such as the sturdy, relatively affordable, wearable GoPro® cameras, allow expanding the visual fields in research into early childhood education. In this study, we set out to explore how multiple viewpoints, generated by chest-mounted cameras on children, can challenge the way of thinking about children's outdoor learning experiences in kindergarten. Drawing on Jayne White's polyphonic dialogical approach to video (White, 2016a, 2016b, 2020), the different viewpoints were put into dialogue during the analysis process, which results in a shift in our theoretical approach from social cultural learning theories to new materialist theories. A wearable camera operates as an extension of children's bodily movement (Caton & Hackett, 2019). This allows such cameras to help us see and listen close to the children's moving bodies (Rotas, 2019). These cameras, as an apparatus, simultaneously

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serve as a performative agent, with its own agency (Barad, 2007). What is captured through the lens is what constantly appears in front of it, without recording focus. In this study, we explore how the lack of recording focus in multiple viewpoints challenges and disrupts our *human-centric gaze* (Caton & Hackett, 2019; Harwood & Collier, 2019) during outdoor learning.

We draw on micro-fieldwork on outdoor activities in a kindergarten. In general, for a Sámi kindergarten, being outside, building a campfire and gathering berries are considered culturally and situationally aware activities. As participant observers, we were inspired by the 'deep hanging out' method (Powell & Somerville, 2018, p. 850), which entails waiting for the children to take the initiative to invite us to play, to move together with them, to have conversations with them and so on. We strived to have respectful encounters with the children and staff and to value their contributions. We also followed ethical procedures and sought to show sensitivity regarding when and where to record. Learning through participation and practical experiences is a traditional strategy in Sámi communities and child rearing (Balto, 1997, 2005). This method of learning is currently being transformed in Sámi kindergartens to strengthen Sámi language, identity and culture in an institutional setting (Norwegian Ministry of Education and Research, 2017; Storjord, 2008). We acknowledge that in the world views of Indigenous Peoples, understandings of concepts such as *entanglements* (Barad, 2007; de Freitas, 2017) and *common worlds* (Haraway, 2015; Taylor & Giugni, 2012) have existed and have been maintained outside traditional western science. Therefore, in this study, we combine concepts from the new materialist approach (St. Pierre, Jackson & Mazzei, 2016; Barad, 2007) and from the North Sámi local Indigenous language to think (or 'know') with (Mazzei & Jackson, 2011).

Being aware that place is more than a backdrop for activities and tuning in to the common world experience as entanglements with nature, seem to be similar to how the place we were at is named *meahcci* in North Sámi. *Meahcci* is difficult to translate, it is a place for time-specific tasks (Joks, Østmo & Law, 2020), in our case, this means that berries are ripe at a certain time and place, and this affects how humans and non-humans act and react.

2 Empirical Context

As a result of the assimilation process of *Norwegianisation*, Sámi people have suffered the loss of language and cultural continuation, especially in coastal areas. Therefore, a project called *Strengthening Sámi Language and Culture* was

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initiated by the kindergarten under study, and we, as researchers, were invited to join. As researchers, we were expected to confirm and support the development of the ongoing and planned practices to strengthen the Sámi language and culture and place it in an academic context. Our contribution to the project was the technology of GoPro® cameras and observation. Overall, the kindergarten under study was active and bold in allocating resources to the local multi-cultural heritage and traditional multilingualism in the area. Aiming to create their own language and culture model for Indigenous kindergartens in the future, they developed learning materials to maintain their focus and ensure the achievement of language goals for mundane situations, such as having temporary staff members who are not proficient in Sámi. Their views and practices are in line with theories on sustainable language vitalisation in an Indigenous minority language context (Cenoz & Gorter, 2017; Keskitalo, 2019; Keskitalo & Määttä, 2011; Kleemann, 2021). In Sámi kindergartens, the traditional ways of acquiring skills are institutionalised, as they are governed by national plans for early childhood education (Norwegian Ministry of Education and Research, 2017; Storjord, 2008). In some ways, such methods contradict the traditional Sámi views of, for example, learning at one's own pace (Balto & Johansson, 2008).

This study draws on recordings obtained from a GoPro® camera attached to a two-year-old girl as well as a researcher's handheld camera. It was a beautiful, sunny day in early September in the Arctic region of Norway. Blueberries and crowberries were ripe, and the heather was warm. A campfire was made to fry fish patties for lunch. The pedagogical goal was to learn about *muorjemeahcci* (berry field). If we were to visit the same geographical spot another time of the year, it would be another *meahcci*, for example, *muorrameahcci*, a place for collecting firewood. The teachers had prepared material and planned the day outdoors for the children to learn the North Sámi names for different types of berries and heather and for them to identify and pick berries and recognise different types of heather. Then, on the following days, they would make berry muffins, smoothies, juice and jam with these berries. The situated Sámi cultural practices involved gathering around the *dolla* (*campfire*), in addition to the pedagogical goals of learning how to start a fire and keep it burning and learning the appropriate North Sámi words.

3 Our Pre-Defined Human-Centric Gaze

Each of our disciplinary traditions (socio-linguistics and social anthropology) has visual or auditory research origins. We drew on Vygotskyan-inspired learning theories, in which social processes and interactions are important aspects of the learning process. *Fast mapping* is a term that describes word learning, in

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which the verbal and social contextualisation of adults are in the foreground (Bloom, 2002). In this paradigm, the process of language acquisition as cultural learning focusses on social encounters (Tomasello, 2003, 2014, 2016). The added value of using multiple cameras was that they were able to provide closer, and more varied access to visual and auditory data. In general, we come from a tradition of 'visualising [the] "other"' with our specific ideas about how 'the craft of seeing' can capture and validate our analytical process (White, 2020, p. 6–7), and are moving into an extended gaze.

4 Our Extended Gazes

Generally, the analytical perspective of the community of practice based on social learning theories has extended to common worlds as well as a gaze towards entanglements with the non-human. Through seeing other visual fields where humans are on the outskirts, our ideas of community are disturbed. Taylor and Giugni (2012) explicate *common worlds* as a conceptual framework to reconceptualise inclusion in early childhood communities. They ask why we separate modes of human collectivity, such as our initial focus on social learning, from other parts of the world (Taylor & Giugni, 2012, p. 110). The notion of common worlds is inclusive in its notion of the more-than-human and focusses on the ways in which our past, present and future are entangled with those of other beings, non-living entities, technologies, elements, discourses, forces and landforms (Myrstad, Hackett & Bartnæs, 2020). Children learn from all the relations they are entangled in: humans, places, the material world and other species. This notion challenges the human-dominant position and represents a shift from human relations to other encounters with which children inter-connect. We find this to be in line with *meahcci*, which is described as a Sámi landscape understanding (Schanche, 2002) in which hunting, harvesting and fishing are integral parts of nature and the culture between humans and animals, countries, weather conditions and different seasons (Kramvig, 2020, p. 100). Over time, people have developed deep respect for all actors living in *meahcit* (plural of *meahcci*): humans, animals, birds and fish (Joks et al., 2020).

5 Changing Gazes

Our focus was initially on community and social interactions, but it then changed to include more complex interactions that also involved culture, nature, cameras and recordings. As illustrations of our changing or disturbed gazes, we selected still images from two recordings; one 12-minute recording

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with GoPro® camera on a two-year-old child (Figure 2, 3 and 4), and one handheld camera (Figure 1). The first example, *dolla* (*campfire*), pertained to the different ways of seeing through camera angles and viewpoints: the researcher's camera and the body cameras. The second example, *goappar* (*mushroom*), was to exemplify how pre-defined research questions limited our gaze. We initially chose cuts from the recordings that fitted language research in a human–social interaction and then disregarded the full-length clips as a surplus. Thus, we did not initially perceive that the recording was telling a more entangled story about interactions with the material environment. The environment is not a passive backdrop anymore. These perspectives echo understandings in deep ecology as well as Indigenous philosophy, in which people and nature are regarded as relational beings (Absolon, 2010).

6 Dolla (Campfire)

The common objective in this activity is to make a campfire. The children were encouraged to participate. As seen in the picture obtained from our handheld camera (Figure 1), the children participated in different ways in campfire activities. The most obvious contribution was from the five-year-old child with the cap, who fed the fire with birchbark. A two-year-old child behind the teacher to the left held a stick in her hand, and the children and the teacher talked about how to use *beassi* (birchbark) to keep the flame alive.

Placing this view into a dialogue with the viewpoints from the body camera revealed something else (or more) that our eyes did not see. The two-year-old



FIGURE 1 Dolla (campfire). View from our handheld camera.

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FIGURE 2 Dolla (campfire). View from the two-year-old child's body camera.

child sitting on the left-hand side of the teacher in the background and the five-year-old child in front of the picture frame were both wearing body cameras. The still image obtained from the GoPro® camera (Figure 2) shows that both children were using their fingers to tear *beassi* from a log at the same time as *beassi* was pronounced.

Our camera framing (Figure 1) reflects an emphasis on social processes and interactions. This focus is also present in the analysis, in which we tried to map children participating in the campfire activity. The girls' tearing *beassi* while pronouncing the word *beassi* was interpreted as their contribution to the community of practice. The images were chosen to illustrate or confirm the interpretation (White, 2020). Through our extended gaze, a close-up of one of the girl's fingers with the prominent log (Figure 2) brought our attention to something else: the child's entanglement with the material world. It became clear to us that we may have entered into 'common worlds' (Taylor & Giugni, 2012; Taylor & Pacini-Ketchabaw, 2018), where the learner and the environment intra-act and different elements mutually influence each other (Lenz Taguchi, 2010). We became aware of *the entangled sets of practices that must have gone into making these images* (Barad, 2007:360) that make up our material.

7 Goappar (Mushroom)

The next stills (Figures 3 and 4) are from the beginning of the 12-minute recording without recording focus by a body camera attached to a two-year-old girl. She wandered around in the heather, sometimes meeting others, communicating

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FIGURE 3 Finding a mushroom. View from the two-year-old child's body camera.

verbally and being met with interest and answers. Two excerpts or cuts were created for a parental meeting to illustrate the outdoor word learning practices in the kindergarten, each for less than a minute. From a socio-linguistic viewpoint, the two excerpts were cut and transcribed with specific attention to language use. This allowed us to focus on the parts of the recording involving verbal language in social settings, mainly the type of communication that the two-year-old child had with another girl and the adults in the kindergarten: precisely the social practices that we, as researchers, were looking for as data and what the teachers needed to justify their pedagogical practices (White, 2016b, p. 477).

We were able to 'see' fast mapping of a word in a cut (Figure 3), because the girl with the body camera ran over to the others (Figure 4) and shared the word *goappar* verbally. We saw and constructed causality from one social encounter to the other. The girl's social and physical entanglements were, however, numerous, and we were able to consider causality or effect differently: '…objectivity in an agential realist sense requires an accounting of the larger material arrangement (i.e. the full set of practices) that is part of the phenomenon investigated or produced' (Barad, 2007:390). The cuts that were created to answer a pre-defined research question, our agenda, narrowed, or even blocked, our vision or indeed actually constructed the practice (White, 2016b:2). For us, applying an extended gaze meant paying attention to the visual surplus (White, 2016b:2), like the video excerpt in Figure 5.

In this recording, this means also seeing the cut-out material between verbal social encounters. The movements and stops in the non-intentional recording

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FIGURE 4 Telling others about the mushroom. View from the two-year-old child's body camera.



FIGURE 5 A still from the child-created video. (See here.)

focus of the body camera made us pay attention to the complexity that the girl was entangled in. Language learning is situated in this entanglement with the landscape, the mushrooms, the educators and the two-year-old child's own hand/finger pointing. Using GoPro® also brought to our attention the movements and re-orientations that she made in between her social encounters. The polyphony in this example is not in the several camera viewpoints on this episode, but rather in considering the polyphony that the different cuts make

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up: seeing the cuts for the parental meeting compared with the full 12-minute recording.

7 Visualising in Common Worlds

Seeing different visual fields in a dialogue with disciplinary fields can expand our critical and creative thinking and help us go beyond our visual and auditory research traditions. Reflections, re-seeings and dialogues can also expand our thinking to include children's relations and encounters with others, including ourselves and our view through cameras. Gazes based on disciplinary focus/theory and chosen method affect what is seen and how this is seen as 'data'. In addition, using several cameras that are not operated by us allows extending the gaze beyond habitualised viewpoints and can disturb the understandings of visual empirical research and the very notion of what we see when we see.

The extended gaze made us question the givenness of the material, whether there was an 'objective existence of particular material phenomena' (Barad, 2007, p. 361; Elwick, 2020), to video material and the answers obtained from it. Our initial socio-linguistic analysis (Kleemann, 2021) is an example of views on givenness in material. Rooted in a socio-linguistic tradition, the raw material was transcribed into a data set, 'an objective existence', to provide answers to research questions that are pre-determined (Elwick, 2020; White, 2016b) by socio-linguistic theories on bilingual behaviour. Which parts of the material were treated as a visual surplus (White, 2016a)? Through pondering the givenness of what we had been interested in, the different viewpoints that were gained through the body cameras provided new insights into the surplus or the unfocused recordings. We found that the technology that we used can create visible phenomena that were not visible from an overview camera or from our focus and were, thus, not valued. GoPro® offers a lens to think differently about children's relationships with the world: how their bodies and movements are shaped and how their communication is shaped through their encounters within the socio-material world. Being able to see these encounters demands shifting the focus both in the real world and in the analyses.

White's philosophy over the Bakhtinian 'work of the eye' and adding the 'I' (White, 2016b), understood here as ego, viewpoint and experience, provided us a disturbance to disciplinary thinking. The notion of *common worlds* (Taylor & Pacini-Ketchabaw, 2018) helped us disturb our preliminary distinction between human societies and natural environments. In addition, the multiple viewpoints brought our attention to the idea of being situated and entangled

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with both humans and non-human elements. Notably, socio-linguistic theories are not rooted in these complex entanglements. Rather, evidence for contextual word learning (fast mapping) has been found in de-contextualised test situations, in which researchers expose children to non-words in order to isolate the intended word learning from 'the real world'. Time passes, from 10 minutes to several weeks, between introducing a word and testing the children's understanding of it (Bloom, 2002). The *goappar* and *dolla* examples are considered contextualised word learning. The multiple and non-focused recordings also monitor aspects of the in-between disciplinary interest (visual surplus). How much does being by the *dolla* and peeling your own *beassi* in silence aid word retention? Or, after hearing a word, such as *goappar*, how much does being surrounded by mushrooms of different kinds in the heather aid word retention? This non-human-dominated space, the entanglements in nature and the in-between human encounters may be where fast mapping and word learning lie. Therefore, the importance of learning the right words, in this context the North Sámi words, cannot be underestimated. However, the context, *meahcci*, can also be perceived as an agential cultural language teacher if we can ease off our fixed perspective from the human encounters in a community of practice and also acknowledge the more-than-human encounters in common worlds of entanglement.

8 Concluding Remarks

When thinking about design and analysis in early childhood education, theories of learning influence the data collection and the process of analysis (Harwood & Collier, 2019). Dominant social learning theories tend to relate learning exclusively to domains of humanity and a traditional pedagogy in which the educator's intention is to transfer knowledge to the child. Hence, a greater focus on entangled practices can help us go beyond the boundaries of traditional learning practices (Powell & Somerville, 2018). In addition, the GoPro® technology can serve as a tool for identifying these processes. Without recording focus, this technology can help capture a multitude of interactions in which children are entangled.

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Lines in the snow; minor paths in the search for early childhood education for planetary wellbeing

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Abstract

This paper explores what place means for early childhood education at a time of global environmental precarity. We draw on fieldwork in Arctic Norway, where kindergarten children spend time with snow for more than half of the year. Children's movement attunes to the nuances and diversity of the snow, as seasons, temperature, light, wind and weather change the consistency of snow and the possibilities for what can occur. The paper presents data of children walking in deep snow during an ice-fishing trip, a practice known as 'grynne', asking what we can learn both about the moment-by-moment attunement between child, snow and place necessary to grynne, and the paths of movement left behind in the snow afterwards. We draw on Manning's work in order to trace the major and minor gestures running through grynne, as an analytic starting point for educators considering the role early years pedagogy might play in planetary sustainability.Thinking beyond the notion of humans as masterfully in control of environment, Ingold's notion of correspondence offers a counter, advocating for a 'lifetime of intimate gestural and sensory engagement' as a way of learning to attune more deeply to place and take seriously the way in which place and humans mutually shape each other. In a place where seasonal temporality matters, in extreme ways that change how children's bodies can move, we consider what children's entanglement with snow can teach us, educators as well as researchers, about education for sustainability.

Keywords

correspondence, environment, minor, movement, pedagogy, place, snow, sustainability

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Vignette

Through deep, loose snow, a three-year-old boy walks away from the others. The fresh snow reaches high up to his thighs and there are no treads or tracks. Gazing towards the horizon, he lifts his entire leg and leans his upper body forward, moving slowly step by step. He does not have a steady course. In some places, his foot falls further into the snow, and he almost overbalances, striking with his arms, but staying on his legs. He moves forward about 20 meters, before turning back, snow and wind blowing on his face.

Introduction

Children, like all of us, are embedded in local places, wherever they may be and however interpenetrated by global flows of knowledge, materials and virtual connections (Alaimo, 2016; Hackett, Procter, and Seymour, 2015; Somerville, 2015; Taylor and Giugni, 2012). Today, our planet is warming more quickly than ever, leading to extreme weather events, damage to bio-diversity, ice melting and higher sea levels (IPCC, 2018). Understanding how humans are entangled in place, in the context of increasing climate change, requires all of us to rethink our actions, relations and priorities, with a less human-centric worldview (Rooney, 2018). Aiming to contribute to a conceptualization of humans as part of the world, rather than somehow separate from it (Myrstad 2018; Ingold, 2011; Instone and Taylor, 2015), this paper considers educational opportunities in an entangled world, intended to assist educators to respond to the question of early childhood pedagogy for planetary wellbeing.

This paper pays attention to child-place-relationships in Arctic Norway, an area that is also a part of Sápmi. In this environment, children in kindergarten spend time outdoors regardless of weather and season. The snow lies for several months, usually from late October to mid-May. During heavy snowfalls, the landscape becomes a snowscape, where earlier nuances, details, and references on the ground disappear. The character of the snow changes significantly both during the season and on a daily basis, and these changes define mobility, visibility and availability of different landscapes (Eira et al., 2018).[1] The Arctic region is warmer than it used to be and it continues to warm, causing changes to the sea ice and the snow covered areas (National Snow and Ice Data Center, 2020). The tundra is melting and snow lies on the ground for average 2 weeks less each springtime and arrives 2 weeks later in the autumn, compared to past years. As Arctic winters become slightly warmer, they become wetter, meaning that snow is a little less common. A greater attending to what happens between children and snow, and the ways in which the two shape and change each other (Sanderud et al., 2019), is important for informing early childhood pedagogy in a context in which these ways of being may be weakened or lost, in the face of climate change.

Whilst children, like all of us, are already emplaced (Pink, 2011), yet we encourage educators to consider the implications of the diversity of spatial, temporal, geo-political ways in which children interconnect with Earth. Places, humans and other bodies are unbounded, mutually dependent and leak into one another (Alaimo, 2016; Comber and Nixon, 2009). Those 'bodies are material themselves' (Änggård, 2016: 77) and through movement, all living organisms interweave with other aspects in social, physical, (im)material environments. Ingold (2013) describes this process as correspondence, or a dance of animacy between human and nonhuman players. Seeking alternative ways to articulate mutual processes of change between living beings and places, and thus to 'become more responsive beings' (Ingold, 2018: 23), leads us to feminist (Osgood and Robinson, 2019; Singh, 2018), Indigenous (Sundberg, 2014) and place based scholarship (Green and Somerville, 2015). This work advocates the impossibility of abstracting knowledge from place, and cautions against notions of mastery of the nonhuman world by humans. Manning (2016) describes ecologies of practice through which more-than-human events unfold and catch children

up, with a particular attention to the energies and movements that might unsettle existing structures of value and hierarchies of knowledge, as minor gestures. In this paper, we consider how conceptualising children's movement through deep snow as a mutual process of correspondence (Ingold, 2013), replete with minor gestures (Manning, 2016) that offer the possibility to unthink human mastery (Singh, 2018), might provide literal and metaphorical lessons for how educators might respond in a context outside of human control.

Sustainability and early childhood education

As Somerville and Powell (2019) write, 21st century children are growing up with a different sense of urgency in relation to the environment, they are growing up in a world 'already out of control'. A growing body of scholarship explores the implications of this for the lives of young children as well as exploring how curriculum and pedagogy might respond (Comber, 2013; Malone, 2018; Rousell et al., 2017). In particular, we are inspired by scholarship that critiques the nature/culture binary which still appears to be perpetuated in dominant 'solution focused' responses to environmental destruction. Ironically, Elliott and Davis (2009) point out, the unspoken assumption that we can separate out the fate of the human race from the future of the rest of the planet, is, in fact, the basis of environmental destruction. Somerville (2016) critiques environmental education frameworks for their Western-centrism, pointing out that when we teach children that the environment is important *for human survival* and it is *their responsibility* to act to save it, we are conveying to children that they are heroes who can save the planet with their actions. Whilst this aims to move individuals to act in particular ways, it also sends a message about the human race as powerful masters of both their own fate and that of the rest of the world. Bowers (in Somerville, 2016) shows how metaphors of anthropocentrism, individualism and progress, dominate Western environmental education;

> "these metaphors work to naturalise an attitude towards cultural practices that disqualifies the significance of non-human nature, take for granted the individual as the basic social unit, and assume that historical change is on a linear path of constant progress."
>
> Somerville, 2016: 511

In a recent report considering the future of education, the Common Worlds Collective (2020) have argued that understandings of interdependency between human and planetary survival should be at the heart of pedagogy intent on planetary sustainability. As a result, a more radical rethinking of the purpose of early childhood in a global, shifting and more-than-human context is required; what does it mean to grow up on an already damaged planet, and what kinds of skills, practices and understandings do children need for a future that we, as adults, cannot fully imagine?

Somerville and Green (2015) propose place as a conceptual framework for these quesetions. Scholars from numerous global locations have described place based approaches to early childhood education in which care for environment, others and self are inter-twined, often with a focus on noticing micro relationships between children and the more-than-human world (Duhn, 2012; Nxumalo and Rubin, 2019; Somerville, 2015; Taylor et al., 2013; Thiel, 2020). Taylor (2019), for example, describes small, everyday encounters between children and wild rabbits as children became 'incrementally aware of how their lives, as well as those of the rabbits, are co-implicated in the imbroglio of invasion and extinction in Australia' (p.7). Rooney (2018) argues that being *in* or *with* weather can open up less human-centric ways of responding to environmental challenges (see e.g. Myrstad and Sverdrup, 2018; Ødegaard and Marandon, 2019; Sanderud et al., 2019; Weldemariam, 2020). Common across this work is a commitment to giving up the human as

separate category from nonhuman, and rethinking the relationship between, for example, children's bodies, thoughts, movement, place, brains, words, breath, growth, development and time.

Movement, gesture, intention

Ingold's (2013) concept of correspondence is a way to think beyond the notion of humans as masterful and in control of environment and open up the possibility for other actants in the context of education. Accordingly, through direct contact and engagement with the environment, knowledge grows into and becomes a part of you. Driving this 'dance' is not accumulation of information *about* the world, but an urge to better correspond *with* the world (Ingold, 2013). The form of materials, for instance clay or, in our case snow, are generated in fields of circulating forces between practitioners, materials and the wider environment (Ingold, 2013: 26–28). The weather, temperature, lights, moisture, wind and particles in the air affect the material at any given time. This means that whenever we encounter matter 'it is matter in movement, in flux, in variation', with the consequence that 'this matter-flow can only be followed' (Deleuze and Guattari, 2004: 450–451). Applying the notion of correspondence to the field of early childhood has implications for how we imagine human intentionality (Hackett and Rautio, 2019) and the way in which thinking may be distributed through bodies and materials (MacRae, 2019).

Ingold's notion of wayfaring as an ongoing process of movement that catches up living beings, has been taken up to describe children's paths of movement through place (Hackett, 2016; Myrstad and Sverdrup, 2019). In our study, as 'wayfarers' in the snow, children 'follow in a gestural dance with the material` (Ingold, 2013: 26). In a snowscape, children's movement must attune to nuances such as seasons, temperature, light, wind and weather, forces that change the consistency of snow and the possibilities for what can occur. Walking calls for the walkers' continual responsiveness to the terrain, the path, the wind, the light, the consistency of the snow and other elements; along the path, events occur and things come into presence (Ingold, 2018). Thus, walking is an important practice in the performative coproduction of knowledge and space (Springgay and Truman, 2018; Sundberg, 2014). Sundberg builds on decolonial scholarship to argue that walking, as 'the embodied and emplaced movements involved in producing worlds - may foster recognition of multiplicity of knowledge system' (p.39). At every step, walkers follow fields of forces; there is an element of uncertainty (Ingold, 2018: 23) and in this sense, attending to the world through wayfaring involves opening up with a lack of fixed intention (Rautio and Stenvall, 2019).

Thinking of movement with lack of prior fixed intention offers resonances with Manning's (2016) notion of the 'minor gesture'. According to Manning, the minor is continual variation of experience, where the staging of disturbances open up new ways of expression. Unlike the major, the minor is not controlled by a preexisting structure, but open to flux. It has a mobility, not given to the major. The decision to respond emerges, as Manning puts it (p.18–19) in the event - in the way movement moves, where one step leads to another. Despite mobility and variation, the minor gesture is often overlooked in favour to the major. Yet, Manning argues, change lies in the minor. By emphasising children's attunement to their surroundings, we want to create a field of resonance for the minor gesture and offer alternatives to the dominant political and economic discourses of sustainability-as-mastery (Elliott and Davies, 2009; Ingold, 2019; Somerville, 2016).

Methodology approach

Drawing on fieldwork in a kindergarten in the northern part of Norway, our data consists of examples of children's entanglement with snow. The data derives from research on children's experiences with and relations to outdoor places during their time in a kindergarten. In Nordic countries,

included the Sami areas, children's self-initiated outdoor play and activities are widely recognised as important educational praxis and aspect of daily life (Halldèn, 2011). The kindergarten in our study is located to a semi-urban area in the northern part of Norway. In this kindergarten, both the Norwegian and the Sami approach to being outside and being in or with the nature are valued. Similarly to Aotearoa/New Zealand, Norway has implemented indigenous themes and cultural values in the education system. This reflects the Norwegian curriculum, which requires teachers to explicitly draw on both Norwegian and Sami cultures (Norwegian Ministry of Education and Research, 2017). Thus, all children within the Norwegian education system should have an Indigenous perspective integrated in their understanding of democracy, and this is a step towards recognizing that Sami culture is part of Norway's National Heritage (Olsen, 2019).

The participants in our group were 22 children (age of 3–6 years), staff and researchers. Together with children and teachers, two of the authors, Anne and Pernille, experienced the outside environment in an area near to the kindergarten, half a day once a week, from October 2018 to May 2019, through the different seasons. In addition to daily time spent in this immediate outside space, the kindergarten took the children on trips to other outside locations, including ice fishing, farms and rock art locations.

As participant observers, we tried to see, listen and sense what was going on. Participation included taking part in children's activities, and learning through these processes (Ingold, 2018). We were inspired by Powell and Somerville's (2018) description of 'deep hanging out' as a curious practice, waiting to be invited by the children to play and walk along with them. According Haraway (2015), curiosity might lead participants off the intended path. As researchers, we were particularly interested in casting our attention beyond the activities and outcomes planned by the teachers, to try to notice what else takes place. For instance, in the example of the ice fishing trip below, we were interested in what children did beyond fishing. We see the practice of being together with the children and place, with curiosity and a wide field of attention, as a practice of correspondence itself (Ingold, 2018), where an animate dance between researcher and the world shapes what we notice during fieldwork.

The data we are working with consists of field notes, video clips, digital photos and our own bodily experiences from 130 hours of fieldwork, carried out by Anne and Pernille. The data also includes reflections from meetings with the kindergarten staff, where we shared some of the photos and video clips. Although informed consent was given by the children's parents, we also had an ethical responsibility to meet the children with sensitivity and respect. One example of this was our approach to video documentation; a handheld camcorder with an open display was used, held at the children's height. This prevented our faces from being hidden behind the camera, allowing us as researchers to communicate with the children (Myrstad, 2009). We also avoided using zoom during videoing, because we wanted the children to constantly be able to see what the lens was pointed towards, and give their verbal or non-verbal assent to being filmed.

This paper draws, in particular, on data from an ice-fishing trip, in April. The ice fishing area is 40 minutes by bus from the kindergarten. At this time of year, the lakes were frozen and covered with snow, and could be walked across. We find data from this trip interesting, because the frozen lake was like a clean sheet with no visible traces of other living organisms. The traces where children, adults and researchers moved with the snow became clear and remarkable. Thus, the wide and expansive location of the frozen lake provides a particularly striking example of practices of walking with snow and ice that we observed throughout our fieldwork with the children in different outdoor locations. Ice-fishing is both a Norwegian and Sami tradition and practice. In a Norwegian context ice-fishing is related to outdoor life and recreation. In this case, ice-fishing where linked to the Sami culture, where ice-fishing traditionally has been part of the harvesting of natural resources during the year, often arranged as a family event.



Figure 1. A frozen, snow covered lake.
Photo: Anne Myrstad.

A clean sheet

When we arrived at the ice-fishing area, the frozen, snow covered lake was as a clean sheet (see Figure 1). Approximately 30 cm of loose snow had erased previous tracks and ice-fishing holes. The landscape appeared untouched to the eye, yet walking across the snow, it was possible to feel the spaces made by previous footprints, hidden under the fresh blanket of snowfall. When the kindergarten arrived, new paths in snow had to be made by walking, creating new traces and paths to places where the group could practice ice-fishing and make a base camp with a fire place.

Walking in deep snow – 'to grynne'

In northern part of Norway, there is a distinct expression for wading in deep snow, 'to grynne'. When grynning, you lift the legs to get ahead, then push down the snow with the foot until the foot meets firm ground. For children depending on their size, there are even more challenges, as deep snow often goes far up their thighs. To get ahead through snow they have to lift their whole leg, combined with leaning the upper body forward. The more moisture in the snow the heavier it is to grynne. However, there is a tipping point, when the snow becomes so compacted as the temperature drops, that it can bear the weight of a small child, but not an adult. In this scenario, the children find the going easier, walking across the crust surface of the snow, whilst the adults' heavier feet continue to sink down deep. Thus, as the snow compacts and the temperature drops, possibilities for the area that can be covered and how much speed and effort this might require, constantly change.

Lines of movement in the snow

At the start of the fishing trip, walking through the deep snow (grynning), the staff made two straight lines to guide the children to a place to make a base-camp with a fireplace and ice-fishing-holes (see Figure 2). To 'grynne' in deep snow is heavy and challenging work; therefore, the most effective way to get to the destination is to walk in a straight line and in the footsteps of the person in front of you. The easiest thing for the children is to follow in the footsteps of the adults leading



Figure 2. From ice fishing during the month of April.
Photo: Hannah Estdahl.



Figure 3. Grynning in the snow.
Photo: Anne Myrstad.

the way. It is easier to move in the snow when someone has stepped down the snow and you do not have to lift your whole leg to walk. The more people who have walked the path, the easier it is to move. In this case, the body's movement is shaped by how others have used the environment (Ingold, 2000).

Whilst the purpose of the kindergarten trip was to make a base camp and do ice fishing, following our methodology, we were interested in casting our attention beyond the pre-planned activities, to pay attention to what kinds of correspondence might unfold between place, children and snow.

Hanging out with the children, Anne took a video clip from which the opening vignette was drawn; a boy walks away from the main group, out towards the horizon some way before turning back. As she followed him, filming (see Figure 3), it had begun snowing and the wind was blowing in his face, and can be heard on the video sound track.



Figure 4. Lines in the snow after ice-fishing.
Photo: Pernille Bartnæs.

During our fieldwork, we became aware that the paths the children tended to make during their wayfaring (*Hackett*, 2016) remained visible afterwards as tracks in the snow. We began photographing snowy spaces before and after the children had visited. Figure 1 shows a before shot of the frozen snow covered lake as a blank slate, and Figure 4 shows the same space after the children had got back on the bus.

As Figure 4 shows, the lines of walking left in the snow after the ice fishing trip demonstrate that children don't just go straight ahead following the adult in the lead. In spite of the difficultly and challenges of going in deep snow, the children carved out fresh lines, which meandered around the space in contrast to the two more destination-oriented paths (created initially by the adults).

Being aware (both from our observations and in our own bodies) of the physical challenges of grynne, we argue for taking seriously these meandering paths. However, we resist an interpretation of these 'break away' paths as an intentional demonstration by the children of independence, mastery, agency and so on, or seek to draw a contrast between the behaviours of adults versus children. As Manning (2016) points out, when we think of movement (of adult or child, human or any other being), the notion of volition can only be applied retrospectively. What unfolds actually depends on 'a continuous interplay of conscious and non-conscious movement' (p.19) shaped by the ecologies of place. Instead of mastery or agency, we read these grynne events as correspondence (Ingold, 2013), recognizing the grynne is not individual movement, rather it is shaped by place, conditions and mutual responsiveness. In addition, we argue that grynne is not an abstractable skill that can be taught, but is specific to place on a moment-by-moment basis and can only be learned through direct participation. In considering grynne as correspondence, we hope to open up both literal and metaphorical understandings of what these hard-won meandering paths through snow (Figure 4), created through mutually responsive human and more-than-human bodies (children, boots, lying and falling snow, wind) might have to teach us about early childhood education, place and environmental precarity.

Rhythm, variability and responsiveness

In our close observation and personal bodily experience of doing grynne, we find that to move in this way through deep snow relies on finding a rhythm, attuning the body to the conditions, and muscles to the kinds of movement necessary. However, grynne is also an experience of constant variability, requiring an ability to adapt and change with each footstep. Each step into the snow

holds different possibilities for what the foot will find, depending on how tightly the snow is packed, and whether there are hidden spaces underneath the surface. Children's movements attune to changes in temperature, light, wind and weather that create micro-variations in the consistency of snow (Eira et al., 2018). For Manning (2016) movement can never belong fully to the human subject and their own volition precisely because of these micro-variabilities in the conditions of movement.

> "But movement-moved is never twice the same: it is always altered by the ecologies that create this singular field of relation, and that influence how it will unfold this time. Volitional movement understood as movement belonging to the subject and fully directed by the subject is, therefore, impossible" Manning, 2016: 19

Ingold's notion of correspondence articulates this process as a dance of animacy between human and more-then-human players. For Manning (2016), the minor gesture is a destabilising force, working independently of human intentionality to shape what unfolds. During the ice-fishing trip, there were pre-planned activities (make a base camp, do ice fishing) together with rational and functional walking lines to these destinations. At the same time, many other actions, activities and lines of movement also occurred. Whilst it is important not to conflate the major with curriculum or adult planning, and the minor with what the children do, Manning writes,

> "The major is the structural tendency that organizes itself according to predetermined definitions of value. The minor is the force that courses through it, unmooring its structural integrity, problematizing its normative standards." Manning, 2016: 1

In this sense, the minor is always there, closely related to and indivisible from the major. It is not a question of which walking lines represent the minor, but a question of how we pay attention to the energies and movements of both the major and the minor during unfolding events. Noticing the minor, when we grynne with children and their adults in the snow, involves noticing what is taking place beyond human volition and beyond predetermined definitions of value.

Pedagogy in a context beyond human control

We write in a context in which, internationally, we notice moves towards the formalisation of early childhood education, coupled with desires for 'globally competitive' students. At the same time, paradoxically, global environmental crisis and the related stuttering of capitalism as a way of making sense of the world (Thiel, 2020; Tsing, 2015) suggest that something quite different might be required. Scholarship we outlined above on sustainability and education highlights how notions of mastery perpetuate a human / nature divide, implying both that the survival of the human race is separate from or more important than the survival of the planet as a whole (Eliott and Davies, 2009), and that humans hold both the power and responsibility to 'fix' the crisis (Somerville, 2016). Recently UNESCO have launched an inquiry into the future of education, and in response, the Common Worlds Research Collective (2020) have argued that 'education needs to play a pivotal role in radically reconfiguring our place and agency within this interdependent world' (p.2). Thiel (2020), drawing on Tsing, urges us to notice unruly edges, as a route to creating new kinds of educational narratives beyond the tropes of progress, mastery and solutions. A little boy's circles of red pen across a blank sheet of paper, Thiel argues, can offer a counter to neoliberal forces mostly concerned with his production as a future economic citizen. Imagining the lines of red pen across a blank sheet of paper, we wondered whether we could similarly view the lines made by the

children's grynne, lines that do not go directly from A to B, as another example of unruly place making in the context of the faltering and failing of capitalism and the 'progress' narrative.

Although variations in movement ecologies are always present (Manning, 2016), grynne gives us a particularly striking example to think with (and to move with). We can literally feel the differentials in the ecologies of movement as our feet slip slightly further than we anticipated into a foothold, or meet snow that looks soft but feels ice hard. As more-than-human movements are activated by registers of difference, they create 'new forms of life-living' (Manning, 2016: 8). These minor gestures could be an alternative way of viewing forces working through and in spite of formalisation, competition and universalisation in education. To find alternative ways for living in a world in which the environment is changing in irreversible ways, does not require straight line points of connection, from A to B (Figure 4), it does not require problems to which there are already solutions (Manning, 2016). These events cannot be tamed or controlled by a conventional educational setting, while it requires openness to the unknown and what might spontaneously unfold. Acknowledging learning with and through place has possibilities for practicing a pedagogy that re-centeres the agency of the teacher and makes space for a myriad of more-than-human 'co-teachers' (Bleikinsop, 2018). For early childhood educators then, paying attention to the minor gestures and considering bodily experiences of place, may be helpful for reframing the role of the teacher and exploring possibilities for a collaborative pedagogue with the world (Common Worlds Research Collective, 2020).

Time, space and valuing the minor gesture

For those who work with young children, taking place seriously involves thinking beyond the use of environments or materials to facilitate the acquisition of skills or knowledge. Instead, giving up the notion of mastery and human exceptionality, a starting point might be embracing the excessiveness of place and the way in which it shapes possibilities for bodies to experience and learn together, often in unpredictable ways. One of the teachers in the kindergarten, where the research was done, said that after becoming more aware of how children are mutually involved in flows and forces in ice and snow, she spends more time moving with the children from one place to another. A trip that previously lasted a few minutes can now last up to half an hour. More often she stops in moments when something unexpectedly engages children meaningfully, for example when puddles are frozen to ice and the children want to feel the ice with their bodies. Similarly the teachers in kindergarten, have learnt from their own situated experiences of grynne, that making time and space for things to unfold, can be valuable gifts that adults can offer to children. An increasing familiarity with the materials of the world (Ingold, 2013), that is, an increasing experience of correspondence, is not a skill that can be taught, hurried or abstracted. It is not a process fully under the control of a human teacher. Time and space during the kindergarten day allows dances of animacy to unfold. This involves attending, as researchers and educators, to the major and minor gestures that run through any event. Manning's (2016) work remind us of the inter-dependency of the minor and the major; it is not a case of doing away with structure of planning in favor of in-the-moment spontaneity, but of noticing and valuing the major and minor within these dynamics.

Conclusion

An important shift in the scholarship around environmental precarity and education has been to move beyond tropes of 'solutions' or 'human mastery'. Alaimo (2016) writes that sustainability imagines the natural world as a store cupboard for human convenience and survival – something there 'for us' that we must be sure to replenish. She argues that a radical shift, rather than a maintenance of the

status quo, is required to respond to the environmental crisis the planet will face in the coming decades. This shift would involve unpicking assumptions about both the desirability of human mastery, and abstractability of knowledge from place.

We have encountered grynne during our fieldwork with young children in Northern Norway as both a literal example and a metaphor for articulating mutual processes of place, children and learning in a more-than-human world. In order to notice the rhythm and variability of grynne, it was necessary to pay close and specific attention to both children and place. Grynne involves learning to change. It involves learning through the body about what kinds of changes might be necessary, on a moment-by-moment basis, and in a context that is not under human control. Whilst we do not want to offer a prescriptive list of recommendations for pedagogy, dialogue with the kindergarten teachers has identified some starting points for early childhood pedagogy for planetary wellbeing; shared bodily experience of movement and place, making time and space for the minor gesture, and making space for more-than-human teachers. We suggest that the children's careful attuning to the many nuances of snow and the possibilities that it offers, gives us a glimpse of just one example of what an alternative approach to learning with and being together with place might look like.

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Note

1. In traditional Sami reindeer herding, for instance, the herders have over 300 words to designate snow and snow conditions. Their knowledge of snow is holistic and integrated into ecology of the herd and pastures. This is a way of thinking and knowing that is elaborated and applied to phenomena across biological, physical, cultural and linguistic systems (Eira et al., 2018).

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sustainability

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Article

I Want to Participate—Communities of Practice in Foraging and Gardening Projects as a Contribution to Social and Cultural Sustainability in Early Childhood Education

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Abstract: Learning and development in early childhood is highly dependent on social interaction and exploration through continuous encounters with the real world. Foraging and gardening are outdoor pedagogical practices that have relevance to education for sustainability. Previous work suggests that engagement in such activities can be characterized by the concept "community of practice" (CoP). In this paper, we explore how characteristics of the CoP can be recognized in foraging and gardening projects performed in the Arctic region of Norway, and we discuss how these activities can contribute to social and cultural aspects of sustainability. Data collection included focus group interviews with kindergarten staff (teachers and assistants) and videos taken of foraging and gardening activities with the children. Our data indicate that the hallmarks of CoP, domain, community, and practice, are strongly recognized in these projects through increased interest, social interaction, and agency for learning. This mutual engagement and participation in the CoPs for foraging and gardening connect both staff and children to local food heritage and culture for a sustainable future.

Keywords: social sustainability; early childhood education; foraging; gardening; local food; children's agency; cultural sustainability

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1. Introduction

Sustainability is a growing research field in early childhood education (ECE) [1–5]. Early childhood education for sustainability (ECEfS) has evolved from learning about nature and sustainability issues to becoming more active by learning in nature and for a sustainable future [6]. Recurrent experiences in nature during early childhood advocate for a relational connection to the natural environment that acts as a precursor to achieving sustainability and pro-environmental behaviour [7,8]. Children's active participation and agency in everyday educational practices for the environment have therefore been raised as important goals in ECEfS [9–11].

A recent systemic review of ECEfS has increased the focus on interdisciplinary approaches and has identified three cornerstones for the implementation of sustainability activities in the early years (scientific action-integrative, community based, and value-oriented scopes) [1]. The review also presents three potential pedagogical approaches to give practical examples for the implementation of ECSfS, which include (1) art-based inquiry experience, (2) outdoor education as a basis for ECEfS, and (3) project and problem-based learning (PPBL) [1]. PPBL is emphasized as a future learning method as it highlights

social learning in real-world settings [12]. Interdisciplinary approaches that engage children in real-life problems that overlap all four dimensions of sustainability (ecological, economic, social/cultural, and good governance) are also suggested [4]. Most research on ECEfS has placed a hegemonic weight on environmental education (EE) and ecological issues, while the cultural and social aspects have been neglected [13,14].

This paper presents two projects on foraging and gardening for food in ECE. Such projects are in line with the framework plan for kindergartens in Norway, which states that "kindergartens shall help the children to gain an insight into food sources, food production and the path from ingredient to meal" [15] (p. 49–50). In previous theoretical work, we have discussed how children both are and are becoming eco-citizens through their natural curiosity, active participation and exploration in nature, and through food foraging and gardening activities [16]. Here, we intend to focus on the social and cultural dimensions of sustainability through foraging and gardening in ECE. The reason for this focus is that it covers socially-oriented practices that facilitate a sense of belonging, connection, and inclusion between people, nature, and culture [14,17,18].

Social sustainability is a broad term that includes the preservation and development of stable societies with social justice, equal rights, citizenship, participation, well-being, health, education, and safety for all people in the community [14,19,20]. Since social participation, participatory decision making, and agency are important aspects of the social dimension of sustainability, we aim to confine the focus of this paper to the active role played by participation (agency) and to learning about the origins of food, by both adults and children.

Cultural sustainability is usually seen as part of the social dimension of sustainability and has been conceptualized as an interdisciplinary framework for identifying different roles of culture in sustainability [18,21]. In our context, foraging and gardening activities belong to place-bound cultural traditions and practices in which the relationship between heritage and food is evident but they also embody a connection to local food traditions [22,23].

1.1. Background

Norwegian ECE institutions are named kindergartens and provide a socio-cultural educational and care facility for children under six years of age. All Norwegian kindergartens are based on democratic values and children's participation, and outdoor activities are endorsed in all seasons [15,24]. Norway values nature and outdoor recreation greatly and has an outdoor law (friluftslov) providing common access to nature areas for activities such as hiking and recreation [25]. This law ensures that everyone has the freedom to harvest wild plant resources and mushrooms for their own use with due care. The Norwegian Government suggests that children and youth should get insight into foraging as a part of the Norwegian culture and as a contribution to education for sustainability [26].

This enables Norwegian kindergartens to focus on local food traditions through outdoor activities, transferring to the children practical skills and local knowledge about natural food resources, including places and seasons for foraging. In the Arctic region of Norway (north of the polar circle), the context for learning activities outdoors is highly dependent on the Arctic climate, the changing seasons, and the local cultural traditions [27]. Historically, practices of foraging for food through fishing, hunting, and gathering berries and plants have been part of daily life in northern Norway, especially in the rural areas and as part of the Sami tradition [28]. Gardening skills are also largely dependent on practical and climatic knowledge, especially in the Arctic where the growing season is limited to three cold summer months. Working together in a community with real settings for foraging and gardening in ECE provides opportunities for both the social and cultural aspects that are important in an urbanizing world.

1.2. Foraging Practices and Gardening to Learn about Food

Hunting and harvesting food from the wilderness, also termed foraging practices, and gardening plants for food provide children with social and practical skills that may last for

a lifetime [29–31]. Childhood foraging can add onto ecological, environmental, and cultural identity development for sustainability [32–34]. A meta-ethnographic review of children's learning in hunter-gatherer societies shows that children are active learners who participate in learning by choice, and for whom learning is an ongoing, playful activity, not separated from the rest of life [29]. Within foraging societies, cultural knowledge is distributed differently according to the individuals' age and gender, which has relevance for children's learning [35]. Cultural transmission of knowledge and skills in gardening and foraging practices are traditionally transmitted from adults to children (vertical transmission) [34,36], and recent studies report that learning also occurs horizontally from child to child (horizontal transmission) or even from child to adult (retroactive transmission) [37,38].

We need to raise awareness of the pedagogical potential of local food in ECE [39]. When children are actively engaged in holistic authentic collaborative activities, such as growing and caring for plants, they are able to develop socially, emotionally, and cognitively through natural self-motivation and discovery [30,31]. Through engagement, garden-based learning relates learning content to context and stimulates curiosity and wonder [40]. Learning about food from direct first-hand experience through recurrent encounters with the food garden, gardening tools, seasons, climatic conditions, and plant species are integrated along the journey [41]. Anthropologist Tim Ingold uses the term "wayfaring" to describe how we integrate and embody knowledge though interaction with the environment [42]. He argues that knowledge is not transmitted, but rather integrated along paths of movement and engagement with the environment through a process [42]. In other words, wayfaring in projects related to foraging and gardening means that the people involved actively explore and learn through inhabiting the process of retrieving food with their hands, heads, and hearts along paths of engagement [41,42]. This active engagement of attention, perception, and participation establishes a relational connection to the task at hand that is essential to learning [42–44].

1.3. Community of Practice (CoP)

Active engagement in a situated learning context has been described as a "community of practice" (CoP) [45]. A CoP is a learning system with a strong relationship to the social construction of knowledge and can be defined as a "group of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" [46]. It is founded on the belief that what people see, learn, and do is situated in their role as members of a community—a CoP [45,47].

One needs to distinguish between what a CoP is and what it is not. Three structural dimensions are all crucial in the formation of a CoP: (1) domain, (2) community, and (3) practice. A community's effectiveness as a social learning system depends on its strength in all these three dimensions [48,49]. (1) *The domain:* The CoP is not just a group or network of friends, co-workers, or another kind of network with a shared interest. The domain is defined by a form of identity that is linked to a shared domain of interest. Passion and curiosity for the domain are crucial and often form deep parts of members' personal identity [48–50]. (2) *The community:* This concerns the community itself and how the members build relations that enable them to learn together and from each other (collaboration, interaction, and mutual involvement). Members are often from diverse age-groups, backgrounds, and disciplines, but the quality of the relationships in the group is crucial [48]. Some communities are self-organized, and they are fundamentally self-governed, but most communities need both frames and structure and some form of leadership to run the process going forward [49]. There will often be core members of the group who take a special responsibility for the process, while other members play more peripheral roles. CoPs work best when they are based on the voluntary engagement of members [48]. (3) *The practice:* The members of a CoP develop a repertoire of resources which, among other things, imply experiences shared and developed in common, ways of doing things, resources, tools, actions, and events. Building learning competence and

skills from practice is central. In short, they share interest and passion in their practice and address problems and tasks along the way [48,49].

A CoP may be a strong actor in the greater engagement in sustainability and can provide, as mentioned above, a framework for understanding social learning [51–53]. However, in the ECE setting, the CoP should evolve to include the children to a greater extent, to involve them as part of the real adult world instead of being situated in a child-sized artificial play world [54]. This is particularly important in creating a sense of cultural belonging and for meaningful and transformative experiences that may empower the children to become agents of change [11,55].

1.4. Purpose of the Study

We have learned that foraging and gardening activities in ECE contribute to the ecological dimension of sustainability [56–58]. These activities have added to the children's knowledge about local plants and animal species as food resources and how everything is interconnected in nature. Both children and adults explore how food is collected or grown by actively engaging in foraging and gardening [41,56–58].

In this study, we focus on the social and cultural aspects of sustainability as related to foraging and gardening through the dimensions of the CoP. Our research questions are as follows:

1. To what extent can two ECE projects, engaging with local foods through foraging and gardening activities, be recognized and categorized as CoPs?
2. How can foraging and gardening activities work to implement pedagogical approaches to ECEfS?
3. How do these activities contribute to the participants' (staff and children) learning and agency as related to the social and cultural aspects of sustainability?

2. Materials and Methods

2.1. Participating Kindergartens and Ethical Considerations

We recruited participating kindergartens for this study from previous collaborations or personal relations with some of the ECE teachers whom we knew had some interest or experience in foraging or gardening for food. The kindergartens were medium sized (60–75 children, aged 1–6 years) and were located in northern Norway. One of the kindergartens implemented a wild food (plants and animals) foraging project (FP) and the other carried out a gardening project (GP). The study was approved by the Norwegian Centre of Research Data. The kindergarten staff (teachers and assistants) and the children´s parents gave their written consent regarding their participation. In addition to the parents' consent, the children were asked to approve filming during some of the activities, to which they all agreed. All data were anonymized.

2.2. Description of the FP and the GP

The FP was carried out in 2013–2015 and the GP in 2020 (during the COVID-19 pandemic). The FP was performed in the local community and most of the wild plant resources could be harvested within walking distance of the kindergarten. When foraging wild animal resources, such as various freshwater fish and ptarmigans, the kindergarten used bus transport to visit different local habitats where the various species resided. The freshwater fish were caught with nets or hooks. The activities connected to foraging for ptarmigans in autumn were designed to let the children carry a self-made toy gun when they walked together with staff who had a hunting license and carried legal hunting weapons. During the winter, a legal trapping system was used. These activities did not yield ptarmigans, but the staff had brought some to study and eat. The FP project also included a visit to a Sami reindeer husbandry community at a reindeer fence where the children could observe the slaughtering of reindeer and have an opportunity to touch and study parts of the reindeer. All harvested food resources were prepared as food for meals both outdoors during the harvesting trips and indoors in the kindergarten.

The GP was performed in the outdoor area within the fence of the kindergarten. The activities included sowing seeds, planting seedlings outdoors in garden boxes, caring for the plants during growth (watering), foraging and tasting crops, and preparing food from crops both indoors and outdoors.

2.3. Semi-Structured Focus Group Interviews

In order to get insights into the staff's overall experience with the FP and GP, qualitative data were collected from five semi-structured focus group interviews with the staff. We chose focus group interviews because the CoP is based on the social construction of knowledge [46]. One of the authors conducted the interview with each group. The focus groups varied in size from two to six informants. Two groups were from the FP (5 and 6 informants in each) and three groups were from the GP (2 informants in each). The interviews were performed shortly after the end of the projects and lasted between 30–55 min. The interviews were based on open-ended questions with a focus on the effects of the projects on both the staff and children. The interview guide involved questions about motivation, engagement, curiosity, knowledge, bildung (education and competence), and sustainability (see interview guide in Supplementary Data). The interviews were recorded and transcribed.

2.4. Video Sequences of Activities

Some of the FP and GP activities were documented by video, either with a handheld camera (for the FP) or with a wearable GoPro-camera on two of the kindergarten children (for the GP) in order to gain insights into the children's actions and interests. Wearable cameras enable children to explore freely and provide a method for capturing children's perspectives in the natural environment [59]. The video sequences used in this article were strategically selected with the aim of exploring the interview data further, especially in relation to the agency of the children in the activities.

The FP videos were taken on an early autumn day when a group of 10 children and 3–6 adults were pulling fishing nets from a mountain lake. Afterwards, they studied the fish and prepared them for a meal cooked on an open fire. The GP videos were taken on an early summer day when one of the authors brought seedlings to the kindergarten for planting in garden boxes in the outdoor area of the kindergarten. These videos include approximately 5–10 children and two adults working together outdoors with the plants, soil, and water. The contents of the videos were transcribed—both in respect of the verbal and physical expressions.

2.5. Data Analyses

CoP theory was used as the basic methodological framework for the analyses with respect to the main characteristics of CoP [46]. The transcribed video sequences and the transcripts from the interviews were analysed and characterized into the three CoP dimensions: *the domain*, *the community,* and *the practice.* This was performed by using an approach termed collective qualitative analysis [60]. This means that three or all four authors worked together during reoccurring intensive workshops to arrive at a common understanding of the data content. The dimensions were labelled thematically and analysed in the course of several rounds to refine the results [61].

The *domain* dimension was used every time the staff or children showed particular "interest and/or curiosity" in the FP or GP, and especially when this was connected to their identity with or passion for the project. The *community* dimension was used when the staff and/or children interacted through collaboration or drawing upon each other's knowledge, skills, or abilities for the task at hand, or if they reached out to the children's family members or other stakeholders for expertise. The *practice* dimension involved building experience, knowledge, and skills by being involved in the practice of foraging or gardening.

In order to explore how these activities may contribute to participants' learning and agency for the social and cultural aspects of sustainability, we focused on signs of the staff's and children's agency within the dimensions of CoP. The interview data from the staff related both to their own involvement (*staff's agency*) and to the children's participation (*children's agency*) in the project's activities. The staff's rather wordy statements have largely been retained but are somewhat modified and are grouped based on similarities. The language translation from Norwegian to English may have influenced the interpretation of the results.

3. Results

The analyses, based on the three hallmarks of CoP as taken from the interviews and video material, are summed up in the following sections. We present the staff's agency first, as stated in the interviews, and then the children's agency, as described in the interviews and supported by the videos. The tables included in each section gives a summarized overview of the different dimensions of the CoP as it emerged from the focus group interviews and video sequences. The essence of statements derived from an analysis of interviews with the staff are presented in the tables. Video expressions (physical and verbal) that exemplify children's agency are drawn from an analysis of the video sequences. When labelled FP (foraging project) or GP (gardening project) the description represents only one of the projects.

3.1. The Domain—Interest, Passion, Identity and Curiosity

3.1.1. The Staff's Agency

The staff from both projects expressed that they experienced the project's activities as interesting, exciting and fun, and as promoting learning (Table 1). The FP staff further claimed that the different tasks in the FP, as well as their own commitment and curiosity, made the interest and engagement "contagious," both between staff members and between the staff and children: *"We see that the children's interest has increased. We see that we have created an engagement in the children. And we have done it together with them."* The staff from the FP emphasized that the duration of the project (three years) was important as it enabled the skills and activities to be deepened and developed further (Table 1).

The staff from the GP highlighted family traditions, culture, and a desire to be self-sufficient as important reasons for engaging in gardening activities in the kindergarten (Table 1). This was especially important for staff who were of Sami heritage. The staff's motivation was also driven by the opportunity to support the children's growing interest in working in the garden. The staff also mentioned that the increased popularity of gardening on social media had enhanced interest in it. Both staff groups (FP and GP) stated that they wanted to support the children's interest and they experienced how their own curiosity and interest influenced the children (Table 1). The foraging videos demonstrated how the adults and children explored together. For example, both children and adults in the FP worked tightly together and expressed interest and curiosity when studying the fish and preparing a meal from the fish (Table 1). In the GP, children and adults worked together and dialogued around what the seedlings needed for growth.

3.1.2. The Children's Agency

The staff described how the children generally showed great interest and a commitment to the activities in both projects, both verbally and physically as well as through play (Table 1). The staff said that the children took the initiative in doing the foraging and gardening activities (e.g., picking berries and digging for worms) when they were outdoors where the activities took place. The video material from both projects confirmed that the children were eager to participate (Table 1). The children in the FP made statements like *"I want to hold the fish."* In the GP, there were statements such as: *"I want to water the plants,"* and *"Can we plant this one?"* In both projects, the children were physically engaged in their foraging and gardening tasks.

Table 1. The Domain dimension of a community of practice (CoP).

The Domain Dimension (Including Interest, Passion, Identity and Curiosity)		
Interview statements—staff's agency	*Interview statements—children's agency*	*Video expressions—children's agency*
The projects are described as interesting, fun, exiting, promoting new learning, etc. Easy to prioritize based on interest and engagement	The children are engaged and involved in the projects	Children are eager and involved both verbally and physically in fishing activities. They want to touch and hold fish and parts of fish (FP) Most children are present, interested and verbally active during gardening activities (GP)
Initial interest based in culture, family tradition or some previous experience (GP) The project itself creates deeper interest	They want to participate (show interest) in every task They take initiative in doing activities on their own (picking berries, digging for worms, tasting crops etc.)	Children express eagerness to participate both verbally and physically They actively take the initiative to do gardening tasks at hand (GP)
Interesting to work over a longer period—to become immersed in it (FP)	The children want to taste 'everything'	Most children express interest in tasting cooked fish and some ask for more (FP) Several children taste plants (GP)
Advantageous to build on previous experience	The children show their interest through asking questions and making statements	Children ask questions: "Is that the . . . ?" and make statements: "That is . . . "
Want to support and follow the children's interest Adults' attitudes, interest, curiosity, involvement and engagement affect the children	Interest develops through repetition and possibilities for 'hands on' experiences	They take the initiative in repeating the tasks several times Children are involved in a rich variety of hands-on activities

The staff reported that the children showed interest in being involved in the entire process from planting seeds and foraging to food preparation and eating (Table 1). However, the staff experienced that the children had to be physically close to be engaged. One of the staff informants said: *"They must be able to reach it and touch it and look properly for them to be interested."* The staff expressed that the children also showed a general interest in tasting both the raw food materials and the food prepared from the ingredients. The staff stated that the children wanted to taste "everything" that was presented as food, and some children even wanted to taste it more than once (Table 1). This interest in tasting was confirmed by the videos where children were to be seen tasting plants and fish—both when an adult offered it to them and also due to their own interest: *"I want to taste more"* (FP/GP).

In the FP, the staff experienced that the dissection of the animals created a significant engagement where many of the children expressed a desire to contribute and physically hold parts of the animal, such as the heart and head (Table 1). Throughout the videos of the fishing activities, this was confirmed through children's statements such as: *"I also want to hold the heart," "I want to hold the head of this fish,"* and *"I want to hold the eggs [*fish roe*]."* The children also showed verbal interest through confirmative questions such as: *"Is that what the fish eats?"*

3.2. The Community—Interactions, Collaboration and Mutual Involvement

3.2.1. The Staff's Agency

The staff of both the FP and the GP reported in the interviews that they appreciated having a joint project in which everyone in the kindergarten was involved (Table 2). In both projects, the staff exchanged resources, skills, and competencies throughout the process and thus became more confident in trying out and taking leadership in different tasks and activities along the way. One of the staff in the GP said: *"It has to do with five heads thinking better than one. Yes, it has to do with the community that makes it [easier]."* A staff member from the FP put it this way: *"If someone had told me that this is how it would be three years*

later, I would never have believed it. For it has been a fantastic journey." The staff in the FP also reported being more curious and wondering together with the children (Table 2).

Table 2. The Community dimension of CoP.

The Community Dimension (Including Interaction, Collaboration and Mutual Involvement)		
Interview statements—staff's agency	*Interview statements—children's agency*	*Video expressions—children's agency*
The staff like having a defined joint project where everyone is involved (it is perceived as unifying)	The children participate together in the whole process from the soil (GP) or field trip (FP) to the meal (cooking/ tasting)	The children work actively together with the adults in pulling nets, taking out fish, dissecting, cooking and tasting fish (FP) and in planting seedlings and watering (GP)
The staff have contributed to each other's learning, mastery and well-being at work (FP) The staff exchange resources, skills, ideas and competence	The children want to participate, help the adults and give input on ideas for joint activities	The children initiate suggestions about what children and adults can do together
Staff and external stakeholders with special knowledge and skills are important for the project's progress	The children have conversations and convey their knowledge and experience to other children, staff and parents Adult-child conversations are important for prolonging interest (FP)	The children point out what they see and express their own theories to the others (FP)
The staff have learned to be curious and wonder together with the children (FP)	The children help each other with tasks and challenges. Often older children guide the younger ones.	The children collaborate both verbally and physically on several tasks The children inspire each other to try out more
Reduced collaboration between sections in the kindergarten were due to the corona pandemic (lack of mutual leadership in GP)	Engagement by the staff and parents inspires the children and vice versa. The children and the adults explore and wonder together (FP)	The communication between the children and the adults is active and instructive in relation to the task at hand

The staff in the FP expressed that it was important that the project included some internal enthusiasts. The project was experienced as unifying by the FP kindergarten throughout the three-year project period (Table 2). In contrast, the GP staff mentioned that collaboration between sections in the kindergarten had been reduced due to the COVID-19 restrictions, and they were affected by a lack of mutual leadership due to this reduced collaboration (Table 2). The staff in both projects emphasized the value of receiving input from external experts and stakeholders (Table 2). In the GP, the children's parents were also engaged in the garden activities. The staff believed that their engagement inspired the children to want to learn and to do more.

To sum up, both FP and GP staff described the interactions between the various participants in the projects and how this evolved throughout the project periods, although a little differently between the FP and GP. The staff emphasized the importance of their own engagement and agency.

3.2.2. The Children's Agency

The staff described how the children expressed their desire to participate and to cooperate throughout the FP and GP processes (Table 2). The children took an active part in the CoP. One staff member in the GP explained: *"The children are present all the time as members of the working community. The children contribute with working when they feel like it."* This eagerness to participate was also confirmed in the transcribed videos through several children's statements, as described under domain (Table 1) and through their physical engagement in different tasks. The staff described how the children came up with their own suggestions and ideas for activities, and how they would convey intently what they knew and wanted to do (Table 2). In one of the FP videos a child suggested: *"Can we study*

the heart [of the fish]?"

As mentioned earlier, the staff felt that they inspired the children through their curiosity. However, the children also seemed to inspire the staff and the other children through their own interest and curiosity. This mutual engagement in the projects thus inspired the participants at a collective level, both from adults to children, and vice versa (Table 2). One of the staff members in the FP expressed: *"The children did a presentation about the ptarmigan to us all together [. . .] it was fun."*

One of the staff members in the FP talked about the children's eagerness to share information with others—both children and adults: *"It is obvious that it has become a part of them and that they want to tell. The fact that you want to tell means that it has given a positive impression. You won't be super eager to talk about something you think is boring."* The videos also demonstrated children sharing their knowledge and experiences with other children and adults (Table 2). For example, a child in the FP explained to another child what fish they had caught in the net: *"This is a char–a char."*

3.3. The Practice—Tools, Knowledge, Skills and Competence

3.3.1. The Staff's Agency

The staff in both projects expressed that their practice had developed and changed during the project due to sharing knowledge with each other and gaining practical experience (Table 3). This, among other things, meant that the staff expanded their involvement and the range of activities they were responsible for. Several of the staff members said that they had matured by taking greater responsibility for activities related to foraging and gardening with the children (Table 3). One of the staff members from the FP put it this way: *"When I started working here, I hid behind the curtains when we dissected ptarmigans. I thought I could never do that. But I'm responsible for that [dissecting ptarmigan] this year [laughing]."* Another staff informant from the GP said: *"I am no expert, but I [or we] figure it out eventually."*

Table 3. The Practice dimension of CoP.

The Practice Dimension (Including Learning Competence)		
Interview statements—staff's agency	*Interview statements—children's agency*	*Video expressions—children's agency*
New practices and knowledge were established during the project period	The children show competence in foraging and gardening, both physically and verbally	The children participate actively in all kinds of activities, both with fish (FP) and in the garden (GP), and they use specific biological terms
The practices improved and expanded over time	The children have learned that they can go straight into the forest or to the garden to find food resources	It seems naturally for the children to make food from the fish caught (FP) and to taste and water the plants (GP)
The practice created engagement and ownership (GP)	The children repeated and expanded on the activities	The children showed interest in dissecting different fish (FP) Their interest in tasting was evident throughout the video (GP)
The practice created desire for more competence (FP)	The children cared for their plants and crops after repeated practice in the garden (GP)	The children took the initiative in planting out seedlings and watering plants, especially those standing in dry soil (GP)
The practice changed attitudes towards spending more time outdoors (FP)	The children gained motor skills through the harvesting trips (FP)	The children were moving around in rough terrain when pulling the fishing nets (FP)

The knowledge, skills and competences that evolved were more pronounced in the interviews with staff from the FP than from the GP. One of the FP staff said: *"Well, I've learned incredibly much. I got knowledge about things I've never ever done before."* The FP staff

felt that they had become more courageous about trying out new things in the course of the project (Table 3). The staff in the GP also felt that they had gained in competence. One of the GP staff put it this way: *"It [the competence] has increased of course, but it is not that we are on top of it and know everything."* Yet another from the GP was not so sure about her competence: *"I don't know if we have learned so much . . . the potatoes are still small."*

The staff in the FP described that they had become more aware of the opportunities that lie in foraging natural resources from the local area. They emphasized their intention to be more spontaneous in taking the children outdoors and the value of focussing on the process rather than on the outcomes of a trip (Table 3). Foraging for nature's resources has become a tradition in the FP kindergarten, and they now practice it all year round. The GP kindergarten has also established gardening as an annual activity with garden boxes in several spots in the kindergarten area, and this had commenced before the official GP was established. However, the official GP was part of a research project on ECEfS with the aim of widening the gardening activities to engage all the staff and children in the process and to involve parents and external experts.

3.3.2. The Children's Agency

The staff of both projects claimed that the children showed increased competence during the project, and that this was expressed both verbally and physically (Table 3). The children developed the necessary skills to plant, harvest, and prepare food based on the raw materials. They passed on their knowledge to others (adults and children), used correct scientific terms, and expressed their knowledge of where the food came from and where they could find it outdoors (Table 3). Such knowledge was confirmed in the FP fish videos, for example, in statements like: *"Here is the stomach," "This is a trout,"* and *"This is a char."* In the GP videos, the children's competence and knowledge was exemplified through their own initiative in irrigating plants that were dry, and by children who expressed that they wanted to smell and taste certain plants (Table 3). The GP staff remarked that the children acknowledged the difference between a carrot from the grocery store and a *"real carrot"* that they had grown themselves. The staff commented that the children developed their competence through the repeated activity (Table 3).

4. Discussion

The first aim of our study was to explore to what extent working with ECE projects on food foraging and gardening in kindergartens could be recognized and categorized as CoPs as defined by Wenger-Trayner (2015) [49]. This was done to establish the participatory effect of the social and situated learning for all members who were working together on the practice of a certain domain of interest, such as foraging and gardening. The second aim was to explore how these activities worked in implementing pedagogical approaches to ECEfS, and the third aim was to establish whether these activities could contribute to learning and agency for the social and cultural aspects of sustainability within the context of ECE. We narrowed the scope for social and cultural sustainability to include participation, agency, collaboration, inclusion, belonging, and sustaining cultural heritage as related to foraging and gardening for food.

4.1. Community of Practice in the FP and GP

Our results suggest that, in both similar and different ways, the two projects can be categorized under the dimensions of CoPs through learning, agency, and the interaction of adults and children during the practice. We see clearly that both staff and children showed, to varying degrees, interest, curiosity, and passion for the domains of foraging or gardening. For some of the adult participants, the interest was connected to their identity through their own cultural upbringing (e.g., the Sami tradition) or something they also did in other areas, outside of the kindergarten (e.g., at home). Passion for the domain is crucial to a CoP, and it is often a deep part of the members' personal identity [50]. It seems as though the members' identity as connected to foraging or gardening was only present to a minor extent prior to

the project period and it became more strongly developed through the time spent on the projects. This was quite evident in the FP, which lasted for three years, but less so for the GP that went on for just one year. The children had to be physically close to be interested and engaged, which suggests that the real-life encounters with food foraging and production were important in creating their passion for the domain. This is also acknowledged by Pecaski McLennan who states: "Young children need repeated experiences observing, exploring, and experimenting within a supportive social context in order to be actively engaged in authentic learning and connected to their peers" [31] (p. 333).

Some CoPs are self-organized, and they are fundamentally self-governed, but most CoPs need both frames and structure and some form of leadership to run the process going forward [49]. There will often be core-members of the group who either have or take special responsibility for the process, while other members play a more peripheral role. In the FP, the staff emphasized the importance of having internal enthusiasts who took informal leadership roles in the project, thus forming core member initiatives. In contrast, the GP staff experienced a lack of such mutual leadership, probably due to the COVID-19 outbreak, which impacted the restricted collaboration experienced in the GP. This restricted collaboration, and the shorter duration of the GP compared to the FP, may suggest that collaboration and mutual engagement within the kindergarten CoP over time are important for its development and progress. Although the children had a more peripheral role as members of this CoP regarding when and how they did things, they were highly engaged, both verbally and physically, with the task at hand in the field or in the garden. The children's agency in both CoPs was based on their request. The children wanted to participate, explore, share ideas, collaborate, contribute, and help each other with the tasks at hand. This is in line with the findings of a participatory case study in a New Zealand kindergarten, which was working with education for sustainability, where belonging, contribution, communication, and exploration were found to be central [11]. A case study that explored kindergarteners' learning when they were engaged in hands-on garden activities suggests that children share their knowledge about the world with others while developing important skills [30].

The practice in a CoP includes developing a repertoire of resources, which, among other things, implies the common development and sharing of ways of doing things and of using resources [49]. The staff in both projects expressed how new practices were initiated, evolved, and shared throughout the project period. The findings indicate that these projects had an impact on the day-to-day practice of the kindergartens, establishing traditions of gardening and foraging that exceeded the end point of the projects. The fact that the practice occurred frequently also inspired the children to harvest food on their own and to share their knowledge about food with their parents. This is another form of children's agency that arose from "wayfaring" this practice together with competent adults in the kindergarten [41]. Similar findings involving the establishment of children's agency through foraging projects have been obtained from an Alaska native rural context [33]. In foraging societies, children are reported to be active learners who participate in learning from their own free will, and the learning is an ongoing, playful activity that is part of everyday life [29]. In these contexts, learning may be an "incidental by-product of social life" [29](p. 386). This description of children's agency for learning in foraging practices resembles the concept of CoP in our FP and GP studies.

4.2. Foraging and Gardening as ECEfS

Foraging and gardening for food are authentic "real-life" activities that everyone can relate to as being important since all people need food every day. The FP or GP may therefore have a different status or value to the participants in comparison to an art or science project, even though these latter mentioned projects also include hands-on experience. Our results confirm that foraging and gardening activities are mainly situated outdoors, they include children in real "adult work" and in our cases, the process of learning is community-based where the children participate actively, both verbally and physically.

Our study has accommodated several of the cornerstones of ECEfS that have been outlined in a recent systemic review that promotes community-based learning approaches that are value-oriented (ethically) and promote agency [1]. The same review acknowledges outdoor education as a basis for ECEfS as it elicits long-lasting bonds between the child and the local environment (place). Repeated encounters with the natural environment and the harvested food were acknowledged by the children in our study as being genuine and more real (e.g., *"a real carrot"* in Section 3.3). The children also learned that they can go straight into the forest or into the garden to find food resources (Table 3). This suggests that foraging and gardening in ECE are significant in achieving a real connection with nature and its resources, which is an important aspect of learning sustainability [7,8]. The children's early connection with the environment through their engagement in local food activities is thought to establish the ecological or environmental identity needed for sustainability [32–34]. The outdoors also gives young children greater freedom to act autonomously [9,59], which is confirmed by the video material in this study. Project and problem-based learning are also highlighted as pedagogical approaches to ECEfS [1,12], and this is at the heart of our study in that children and adults explore different aspects and approaches to foraging and gardening together.

4.3. Foraging and Gardening for Social and Cultural Sustainability

The findings from the FP and GP show that the adults in the kindergarten included the children in the work. The staff believed that the children were able to do things and the children wanted to participate. Together, the children and adults coped with the challenging work of sowing, watering, picking berries, catching fish, and examining the insides of animals, all while gaining experience in working side by side to obtain food. This may provide the basis for coping with complex situations and solving critical problems through collaboration and negotiation with others later in life [12].

Our FP and GP studies have shown that the social learning context outdoors, in collaboration with stakeholders of different ages and levels of expertise, created spaces for deep engagement, coping, and mastery of new skills together with a curious exploration of local food resources at different levels. Some of the staff participants matured into daring to do things they never believed they could master, and others were driven by their curiosity and interest to learn more. We postulate that the FP and GP projects have created a sense of belonging to nature through foraging and gardening for food and by belonging as members to an evolving CoP. The children were situated within the adult world and were embedded and included in the learning activities [54,55]. This is highly relevant to the social aspect of sustainability, which advocates participation, agency, collaboration, inclusion, and belonging. The children in the kindergarten clearly wanted to participate from their own free will and to explore and taste the food that they had retrieved or grown themselves.

Food connected to the local area is a strong cultural marker, and therefore the engagement in the FP or GP in kindergarten leads naturally on to a discussion on the cultural dimension of sustainability. The Arctic food culture has traditionally been highly connected to the local environment and the resources people can find during the different seasons. Traditionally, the food resources for surviving the long winter have mostly come from animals since plant materials are scarce and only available during the short summer. Although most people in northern Norway, including the indigenous Sami, now obtain the majority of their food resources from the grocery store, to a certain extent, the harvest culture is still ongoing. The Norwegian Government also emphasizes that children and youth should get insights into foraging as a part of their Norwegian culture and as a contribution to education for sustainability [26].

In our study, external stakeholders with some expertise in foraging and gardening were initially involved in the projects in the kindergartens, thus providing vertical transmission of knowledge and skills, as described by Nugent and Beames [36]. However, most learning and exploration were obtained through mutual engagement by both the children and adults

during the practice. Learning also occurred between the children (see Table 2), representing horizontal learning (between people of the same age) or as retroactive learning (from child to adult) [37]. However, direct perceptual engagement with the situated practice of gardening in kindergarten is ultimately a process of wayfaring [41] where cultural and place-bound "knowledge is integrated alongly" [42] (p. 154). Wayfaring is described as active engagement through attention, perception, and participation, which establish a relational connection to the task at hand that is essential to learning [42–44]. Learning, in this sense, is thus not transmitted but obtained through recurrent encounters with the cultural practice: "we know as we go, not before we go" [43] (p. 230).

The social and cultural learning context of foraging and gardening for food is highly relevant for ECEfS. Food has special status for us as human beings as it nurtures us, stimulates our senses, and is in the daily practice of shared meals. Children's participation and agency in growing and obtaining local food and their discovery of local food heritage and traditions will be significant knowledge for generations to come.

5. Conclusions

The foraging and gardening projects in this study can be recognized as CoPs where all the members in the kindergartens were engaged and learned in the practice. The staff and children explored and learned through hands-on activities and meaningful experiences based on social interactions and a growing interest in the domain of practice. The authentic practice of obtaining local food in the outdoor environment through community projects, problem-based learning, and children's agency and participation involved highly relevant pedagogical approaches for ECEfS. The way learning occurred in these projects was not only based on a traditional vertical transmission of knowledge from "expert" adults to children. Rather, the growing competence arose from a mutual engagement in foraging and gardening for food in a local and traditional context (cultural aspects). Both adults and children showed active participation and agency during the process (social aspects), and their inner drive to know and experience along the way was essential to the outcome. To be part of a kindergarten CoP that is engaged in practical actions for the traditional and place-based use of food resources can contribute to learning and agency for both social and cultural sustainability. We may need to be more sustained by local foods in the future. Maybe these skills and this knowledge will be highly significant for the new generation in our growing urbanized world threatened, as it is, by climate change? Further research should focus on how participation in foraging and gardening projects in the kindergarten will contribute to children's agency for sustainability in the future.

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Exploring Military Artefacts in Early Childhood Education: Conflicting Perspectives on Cultural Sustainability, Belonging and Protection

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Abstract: Social and cultural sustainability is outlined as creating surroundings that include and stimulate positive interactions, such as promoting a sense of community and a feeling of belonging to a community, by being safe and attached to the local area. Artefacts chosen in early childhood education (ECE) institutions are integrated parts of the culture in which the ECE institutions are embedded; artefacts, thus, are understood as serving belonging and cultural sustainability. The study examined what insight into cultural sustainability could be surfaced in conflicting perspectives about military artefacts in ECE. Focus group interviews were conducted with Chinese and Norwegian graduate students and ECE researchers, during which photographs of a Chinese kindergarten where military artefacts and toys were highly represented. Conflicting perspectives on military artefacts among the participant surfaced how belonging are closely intertwined with protection and where to belong: locally, nationally or internationally. The skeptical approach to military artefacts is challenged by awareness of different ways to promote national pride and entanglement among generations. The findings indicate a need for more research on conditions for belonging and the normative complexities of artefacts in cultural sustainability.

Keywords: early childhood education; cultural sustainability; military artefacts

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1. Introduction

Education, including early childhood education (ECE), is put forward as important when aiming at more sustainable living [1–4]. Although sustainability requires multifactorial, intra-disciplinary approaches that include ecological, economic, social/cultural and political dimensions [5–8], we focus on social and cultural sustainability. We aim to contribute to broadening sustainable thinking and practices, by investigating a dimension of sustainability that is often left in the shadows [9]. Furthermore, we intentionally investigate conflicting perspectives towards cultural sustainability to forward normative complexities.

Social and cultural sustainability points to development that ensures safety, social rights and good living conditions for all [9], as "a life-promoting state within communities and a process within communities that can achieve this condition" [10] (p. 12). Mannion and Adey [11] and Grindheim et al. [7] see social and cultural sustainability in the context of ECE as creating surroundings that include and stimulate positive interactions, such as promoting a sense of community and a feeling of belonging to the community in which we live, by being safe and attached to the local area. A contradictory and important aspect of cultural sustainability emerges when facing challenges such as migration [9], pollution [12] or wars. In these perspectives, local involvement and belonging may not be enough to achieve sustainability. Therefore, local, national and global belonging are asked for. The issue of global coexistence calls for perspectives on belonging beyond the local or national state.

We assume that the perspectives on belonging and proper artefacts may be conflicting when discussing this issue from the position of Chinese or Norwegian ECE; the People's Republic of China and Norway have different histories, cultural traditions and political systems. In addition, the nations are very different in size and population, representing one of the largest populations and one of the smallest populations globally. China comprises almost 1.4 billion people including 56 minority groups with different languages and traditions; Norway has 5.3 million people and has the last 40 years developed from a mainly homogenous population, with the exception of a minor indigenous population, to become more heterogeneous population due to labor and refugee immigration. As a consequence, the ECE in the two countries face different challenges and conditions in education for cultural sustainability. However, the question of children's belonging to family, kindergarten, local community, society and nation is addressed in the Chinese ECE Guidelines [13] and the Norwegian ECE Framework Plan [14].

With support from UNICEF, the Ministry of Education of China completed in 2012 the Early Learning and Development Guidelines (hereinafter referred to as the Guidelines) for children aged 3–6 years [13]. The Guidelines are quite specific and articulates expectations for children's learning and development in five different developmental areas. One of the learning areas is entitled Social Development and comprises four different benchmarks, to establish initial sense of belonging is but one. This benchmark highlights outcomes such as to know their nationality with many different ethnic groups and to know some significant achievements of the nation, to show love for their motherland and to feel proud of being Chinese.

The Norwegian Framework Plan for Kindergartens—Contents and Tasks [14] is a national framework for children aged 1–6 years. The Framework Plan addresses seven different learning areas where one is entitled Local Community and Society. Sense of belonging is strongly connected to the local community. The Framework plan highlights that children are supposed to learn about local history, places, persons and traditions in order to create a sense of belonging. Nation and national pride is not mentioned. However, the content shall enable children to participate in society on equal terms and learn about national minorities.

Although both the Chinese Guidelines and the Norwegian Framework plan forward belonging, we see that the cultural context where the children are supposed to belong, differs a lot. The local, institutional and cultural context are central to what is seen as important and what to emphasis when facilitating children cultural formation. A crucial aspect of cultural formation and belonging is available artefacts [15,16]. A controversial type of artefact is military artefacts [17,18]. Artefacts chosen in ECE institutions are integrated parts of the culture where the ECE institutions are embedded; artefacts, thus, are understood as serving belonging and cultural sustainability. Therefore, we suggest that artefacts are culturally sensitive and by investigating conflicting arguments for their (non-) appearance, we can glimpse some of the values and understandings of cultural sustainability and conditions for belonging, which we take for granted. This article is therefore guided by the following question: What insight into cultural sustainability can be surfaced in conflicting perspectives on military artefacts in ECE? This question is investigated from analysis of focus group interviews with Chinese and Norwegian graduate students and ECE researchers. The interviews aimed to seek conflicting perspectives from how Norwegian and Chinese early childhood education graduate students and researchers perceive photographs depicting Chinese early childhood classrooms that utilize military artefacts. Conflicting perspectives can surface taken-for-granted perspectives of proper artefact to facilitate belonging and thereby provide input regarding what to preserve, change or remove in taken-for-granted practices that aim to establish local, national and/or global belonging.

2. Contesting Artefacts in ECE

Children's exposure to war toys has been contested in contrasting societal messages for young children related to the appropriateness of military toys [19]. Playfighting and use of war toys have been considered detrimental symbols of violence and aggression [20–22]. Hartmann and Borugere [17] find that war toys are controversial and unwanted for ethical and psychological reasons in many European countries. However, toys have been disseminating discourses of war for decades globally [23,24]. Today, children are exposed to war toys by the toy industry and the computer game industry. Machin and Van Leeuwen [23] (p. 52) state that "what is also important and not so well understood, is the way that the toys of different eras have prepared children for specific kinds of warfare, fought in particular ways fused with specific political ideologies about the meaning of war and the society itself during those times".

Exposure to war toys and artefacts in ECE institutions has also been contested. In Norway, for many years, the well-known toy company A/S Riktige Leker (Proper Toys) was an important stakeholder that recommended appropriate toys in Norwegian kindergartens [25]. The company had strong connections to the International Women's League for Peace and Freedom and to the Organisation Mondiale pour l'Education Prescholaire (OMEP). The company's pedagogical profile was peace work, humanitarian and social work. In 1949, the board sent a note to all toy wholesalers in Norway, asking them not to expose children to war toys, such as soldiers, tanks, guns and bombers. At an exhibition the same year, a headline asked rhetorically: Shall we raise children for war and destruction or build peace in children?" [25]. By excluding war toys, this company installed assumptions of appropriate pedagogical toys among generations of Norwegian kindergarten teachers. According to Korsvold [25], this note described children as vulnerable and victims of wars and as future agents for peace. After the Second World War, safety was an important value. Appropriate toys were part of this safety and war toys a marker of non-safety. In contemporary curricula for many ECE institutions in Norway, there is the same attitude toward military artefacts: "The staff do not want the children to bring war toys into the kindergarten" [26]. Although the skeptical approach to military artefacts is well established, it forms a contrast to artefacts present in Norwegian ECE institutions. Ødegaard's research [27] surfaces that commercial artefacts like captain Sablertooth's sword are often present in Norwegian ECE institutions. From our 30 years of involvements as ECE teachers and ECE teacher educators and researchers undertaking teaching, field work and guiding of students in ECE institutions, we know that bravery and nationalism can be traced to the presence of knifes in everyday life in kindergarten and the presence of the Royal Guard in the children's parade when celebrating our national day. To our knowledge, these contradictive approaches to artefacts that might represent possibilities both to harm and to protect are rarely investigated.

In contrast, in China, traditionally military artefacts have not been contested in the same way as in Norway [24,28]. Quite the contrary: "different regimes similarly deployed toys and play in order to foster children's engagement in struggles of a political, commercial or military nature" [24] (p. 17). Bai [29] investigated toys during the dynasties in China and found traces of current military artefacts in historical military activities, such as the use of kites and rope swings. These activities originated in serious contexts and then survived as simple amusements. However, they are not what today we consider war toys. Boretti [24] argues that "although mobilization was construed as defensive, patriotic activism and acquaintance with the metaphorical or real battlefield were significant components of Chinese children's upbringing from the beginning of the twentieth century". In addition, she outlines toys as indicating "a meeting of the worlds of children and adults" [24] (p. 17). Hung [30] describes how endless repetitions of Chinese political symbols became a natural part of installing patriotism in kindergarten children during the Cultural Revolution. With games, photographs, films and toys, the message of socialism and patriotism was mediated.

The issue of (non-) legitimation of military artefacts in ECE in China and Norway touches on contradictory values, such as fostering peace or avoiding wars or aggression,

fostering patriotism, imparting knowledge about national history and even bonding adults and children during festivals that include an element of play.

3. Artefacts, Cultural Formation, Belonging and Sustainability

There is growing interest in materiality in ECE research and practice [31]. Despite ontological differences, it can be claimed that this research is continuing the legacy of Pestalozzi, Fröbel, Montessori, Dewey and Reggio Emilia that emphasizes the materials involved in specific activities [32]. In addition, Sutton-Smith's [15] iconic work addresses how toys play a significant role in the lives of children and their parents and how toys reflect values, demands, economy and stereotypes, as well as how we view children and play.

Several researchers who investigate what often is referred to as the "the material turn" lean on posthuman perspectives [8]. That is, they take an ontological standpoint from phenomenology, semiotics and discourse analytic approaches, while trying to challenge these approaches and the overall emphasis of humans and language as the center for meaning making. The objective of material turns is to challenge the humanistic approach that is taken for granted, in which language and ways of thinking are presented as the main ways to understand and learn, because the humanistic understanding of the subject leaves material-discursive elements, such as non-human materials (room, furniture, nature, toys, etc.) in the shadows [33,34]. Discursive formation due to these materials and hegemonic ideas about pedagogical practices, gender, age, ethnicity, social class and abilities, therefore, may be ignored [35,36].

We claim that the same might be the case when aiming at facilitating cultural sustainability and belonging in ECE: Hegemonic ideas about nationalism, peacebuilding, children and play may prevent us from insight into more sustainable living. Therefore, we take materials (military artefacts) as the object of study. In contrast to the material turn, where activities are the object of study, we aim to understand how graduate students and researchers' legitimation or non-legitimation of military artefacts can uncover constituted taken-for-granted approaches to cultural formation, belonging and social and cultural sustainability.

Building on Ødegaard and Krüger's [37] ideas of cultural formation, we understand it as an ever-present and continuous process. They describe cultural formation as a descriptive concept that portrays the acts of humans in relation to the conditions in their culture [34]. As these acts by humans are embedded in their culture, we understand cultural formation as fostering belonging in a culture. We investigate war toys and artefacts and the legitimation of their (non-)use, as one among several conditions that represent institutional and cultural values and demands. Therefore, we see artefacts as a part of the physical and social curricular space and as a condition for cultural formation [37]. Because culture is embedded in the curricular space reified by available artefacts and the themes emphasized in ECE, the notion of cultural sustainability and belonging comes up.

4. Materials and Methods

In order to forward normative complexity and conflicting perspectives within practices for cultural sustainability, we used polyvocal photo-elicitation. The use of photos during the interview process is a variation of open-ended interviewing [38,39], a non-directive interview that, although initiated and guided by the researcher, is intended to grant an interviewee greater space for personal interpretation and responses [40]. In photo-elicitation, this exchange is stimulated and guided by images. Photos are open ended and by resisting single interpretations, photos can give rise to a range of alternative paths of inquiry [39,41–43].

We included different stakeholders representing Chinese and Norwegian ECE researchers, kindergarten teacher educators and ECE graduate students. The aim of including different stakeholders was to explore and elaborate different interpretations of the images and possible conflicting perspectives. The discussions were not intended primarily as a path to the fusion of horizons [44] but as means of opening up the interview to opportunities for subjective and negotiated interpretations, descriptions and meanings [40].

Because the photographs have communicative properties, looking at the images during the interview constituted a joint interpretative event.

The interviews, were based upon six images (photos) of military artefacts in a Chinese classroom for 5-year-old children that we took when we visited the kindergarten. The first picture displayed a military obstacle course with two children in military uniforms crawling in a shooting position. The walls weredecorated with military symbols, colors and people in uniforms. The second and third pictures showed exhibitions of military weapons and vehicles from three military branches. The fourth picture showed a combination of exhibition and military artefacts made by children. The fifth picture showed a group of children dressed in military uniforms. In the sixth photo, two children were sitting in a military tank with their teacher cheering beside them.

In the interviews, we started to inform the participants about the aim of the research and the background of the exhibition of military artefacts in this specific kindergarten. Then, we showed the first photo and asked each participant one by one what they saw in the photo and what their reactions were to what they saw. Their comments were not discussed in this part of the focus group interview. After all the participants had commented and shared their interpretations of each of the six photos, they were asked the following questions: "What do you think the teacher want to achieve by this exhibition?", "What kind of values do you identify in this classroom?", "How would you legitimize use of military artefacts in kindergarten?", "How would you legitimize no use of military artefacts in kindergarten?" and finally "Is there anything you want to add?" These questions elicited perspectives from each participant, but also explanations and discussions with exchange of opinions and arguments among the participants.

4.1. Empirical Material

The empirical material was produced from two photo-elicited focus group interviews. The first interview included two graduate students from China and two from Norway. All the students were female. The students were selected based upon their cultural knowledge and experience with ECE in both countries. This interview was carried out with all the participants in the same physical room. The second interview included two ECE researchers from China and two from Norway. The four researchers were selected due to their cultural knowledge and experiences with ECE not only in their homeland, but also in the host country. In addition, experiences from both countries they all have been involved in research including ECE in both countries. As such, they were not completely outsiders to the ECE in any of the cultural contexts. Our preconception was that contextualized knowledge among the participants would enrich the reflections and arguments in the focus group interviews. All the researchers were female. This second interview was carried out digitally on Zoom. Each interview lasted for approximately two hours.

The focus group interviews were led by one of the authors. The interviews were not recorded, but one of the authors wrote down the comments during the interview. Both interviews were transcribed and sent to the participants for their comments on the transcription. Some participants used this opportunity to clarify the meaning of their statements and reflections.

4.2. Analysis

We performed a content analysis and organized the material into four categories, which reflected the main themes that arose during the interviews: conflicting perspectives about appropriate themes and artefacts in ECE, conflicting perspectives about childhood and children, conflicting perspectives on how to facilitate ways of belonging and conflicting perspectives on appropriate classroom decorations. In the presentation of the analysis and discussions, we discuss the first three themes and omit decorations as a theme. Although the legitimation or non-legitimation of military artefacts based on arguments regarding suitable decorations for young children's environments is interesting, the discussions centered on colors and art, rather than the presentation of military artefacts as such.

In accordance with Grindheim's [45] outline of conflict analysis, we put conflicting perspectives about these themes in contrast to each other. In accordance with the question that structure this article, it is the conflicting perspectives and possible emerging insights into ways to facilitate cultural sustainability in ECE that is of interest.

4.3. Ethical and Methodological Dilemmas

The participants were informed about the purpose of the study when they gave informed consent. They were also informed that they could withdraw their consent anytime. One participant used the opportunity to withdraw. Therefore, we needed to organize a new focus group interview including a new participant. This incident made us even more aware of the sensitivity of the topic. We informed the new participants about the purpose of the study which is to provide insights into the cultural position of play material. By focusing on the use of military artefacts and toys, we want to challenge taken-for-granted arguments about the use of the military artefacts or toys as legitimate or not.

In this study, the photos were of a Chinese classroom in a specific time and at a specific occasion. The classroom was decorated and exhibited artefacts in connection to the celebration of the 70 years' anniversary of People's Republic of China. The National Day, October 1, is always a topic/theme in Chinese kindergartens. However, this year was special due to the anniversary. The choice of these specific photos for focus group interview was based upon our assumption that these photos could elicit conflicting perspectives on artefacts supporting belonging. The purpose was not to compare Chinese and Norwegian practices concerning belonging and cultural sustainability, but to provoke a diversity of arguments and possible conflicting perspectives. We could see that this led to a position of defense among some of the Chinese participants during the focus-group interviews. The Norwegian participants took a position more to understand the Chinese position and partly argue against what they saw. The Chinese participants had less opportunity to do so, as there were no corresponding photos from a Norwegian classroom. The situation illuminates how cross-cultural studies easily provoke defense and assessment of what is right and wrong, better or worse practices. The fact that we both are Norwegian researchers may have reinforced this tendency during the focus group interviews, although we repeatedly emphasized that the purpose was not to assess best practices.

5. Results

We present the conflicting perspectives by presenting utterances which represent the central arguments that came up several times or were made by several persons.

5.1. Conflicting Perspectives about Appropriate Themes and Artefacts in ECE

There are utterances supporting military artefacts in ECE. Some arguments pointed to the educational aims to learn about different weapons and military branches in China: "there are two ways that military artefacts are legitimized (1) To teach children about weapons and the development of them. (2), To tell the children how dangerous the advanced weapons are. Therefore, we have to be careful how we use the weapons". Another argument is that soldiers are good role models for children: "For children the soldiers and the military are ideals. Soldiers are strong, healthy, ambitious, brave, smart and thereby a guiding ideal for children". This ideal formed a contrast to informants' outline of the historical position of China: "It is a tradition to honor the military. Historically we have been weak and bullied. The military protect us and our country, we do not attack". The protection aspects of the military also have a civil aspect: "The military do not only protect us in wars; they save and protect us in crises like natural disasters, earthquake and fires". Arguments were also connected to social equity pointing to the fact that soldiers come from ordinary families: "Soldiers come from ordinary and even poor families from the villages and are trained to become national heroes". This point seems to be important to demonstrate for children in kindergartens.

However, there were comments disputing military artefacts in ECE. An argument promoting peace was repeated several times: "What is early childhood education for. What is the purpose for early childhood education? What is important to us? Make peace or promote war?" Another participant was surprised by her own reactions to the exhibition of military artefacts: "I am fascinated by my own reactions: I see a boy organizing toys in a proper line, like with any kind of toys: cars, animals. However, when it comes to weapons and the military, it affects me. Weapons that make huge damages". Another argument was related to the question of play: "This do not look like play, but more like an information campaign about the military".

The conflicting perspectives derive from very different angles; from understanding these artefacts as promoting learning, promoting soldiers as strong, healthy, ambitious, brave, smart who can help in crises. These ideals for children form the opposite of the historically weak and bullied Chinese. In contrast, there were also interpretations of military artefacts as something glorifying wars and opposing the promotion of peace.

Due to our understanding of cultural sustainability and cultural formation, we suggest that the arguments supporting military artefacts emphasize the aim of education as learning about weapons and how to treat weapons because they are dangerous. Weapons, per se are dangerous; they are made to create danger. In this context, we interpret the argument as children need to learn to handle weapons to avoid harming themselves or persons in the community to which the children belong. Thus, we touch on cultural sustainability, as local or national belonging where people are safe. Other arguments for military artefacts are the educational ideal soldiers represent. The cultural formation aims at citizens who are strong, healthy, ambitious, brave, smart and able to protect and help in their community. To protect is closely connected to belong and be safe and the military is at the forefront as protection for those who belong against those who belong in other states. The arguments also support that the military provides opportunities for equity, because poor people can join the army and become heroes. In contrast, the contesting arguments for not including military artefacts in ECE are that play materials resembling dangerous weapons must be avoided. Weapons create damage, not peace. Military artefacts promote and symbolize aggression and war and might even transform children's play into a recruiting campaign for future soldiers. In these opposing arguments for not including military artefacts in ECE, belonging, being free from danger, protection and equity are not brought to the table.

5.2. Conflicting Perspectives on Childhood and Children

There were utterances supporting military artefacts as appropriate for children and in the childhood setting. Some informants even pointed to the familiarity of the topic, for example, by pointing to the national holiday in China, on October 1. "This is quite normal. All the Chinese kindergartens celebrate the national holiday on October 1". Another argument was about how children can be familiarized with their local surroundings: "Children in kindergartens should be exposed for the surroundings. They are exposed to schools, hospitals, fire-station, police-station, working places. Why should they be protected against the military?" A third argument was that this is not as much about the military: "It is a showoff" to demonstrate that you are doing what is expected, in a good way.

However, there were utterances disputing military artefacts as appropriate for children and in childhood settings, such as "this really violates my understanding of childhood. War and military uniforms belong to the adult world and we have to protect the children from the adult world. My associations go to children soldiers". Another argument pointed to the fact that war exists, but children need protection: "There is war all over the world. Countries protect themselves, but these are small children in kindergarten". These arguments saw military artefacts as symbols of war. One participant expressed this point as follows: "To me, as a kindergarten teacher I would have chosen peace and talk with children about how we create peace in the world. This is a political message that does not belong in kindergarten".

The conflicting perspectives contest what is appropriate to expose children to. There were arguments for seeing the military as a natural part of the surroundings of children, that they should be exposed to all parts of social life and that ECE institutions should follow the curriculum. These arguments forward the need to mark and celebrate what is celebrated elsewhere in society, that the military is a part of their surroundings or neighborhood and thus, should be a part of their curriculum. The opposing arguments stated very clearly that children should be protected from this part of the adult world. It is too early to expose them to the military.

These conflicting perspectives are relevant for understanding which conditions are seen as appropriate for children in their physical and social curricular space. Based on our understanding of cultural sustainability and cultural formation, we interpret the utterances that support bringing knowledge about the military and military artefacts into the ECE institutions as representing an intergenerational approach to cultural formation and belonging. In contrast, the utterances that dispute bringing knowledge about the military and military artefacts into ECE institutions represent a view of childhood as a separate phase in the lifespan of humans. These opposing views ask for opposite approaches to children's cultural formation and their belonging.

5.3. Conflicting Perspectives on How to Facilitate National Belonging

There are utterances supporting the military as a theme for promoting belonging, pride and patriotism. One comment suggested that this is a clear expectation and a mandatory part of the Chinese curriculum plan: "National pride. It is one of the teacher's tasks; they are supposed to have these exhibitions. Kindergartens differs in ways to celebrate the national day". Another argument also connected the topic to the celebration of National Day: "I suppose they have had this as a kind of activity close to the national day. This day celebrates and show that we are proud of the army, it shows that we are strong, it promotes nationality and provide safety and how we are proud of our country. Kindergartens let the children do the parades that are performed at the national day, as dramatic play". The following comment suggested that the military museum is situated close by and thus, is an important cultural site to visit: "They have been undertaking the theme 'we are Chinese' around the national day. Here is a lot of things representing China's development. A lot of military things; do they have a military museum in this city? Perhaps they have visited there and wanted to make one".

However, there were comments disputing emphasizing the military as a theme for promoting belonging, such as "in Norwegian kindergartens, we don't see this kind of artefacts". "It is scary, unfamiliar to me". "I would not use them. They are war materials. I would never put children in military customs, like training them for war. For me and in Norway, connecting war and children are taboo. We will not make the children aware of wars". There is pointed to the Norwegian way of celebrating National Day: "We celebrate the 17th of May, as a children's day. There are no military artefacts at all". "The Norwegian celebration includes parades with children, followed by eating ice cream and playing games facilitated and joined by adults, quite different from the military parade on October 1, in China".

The conflicting perspectives reveal that those who dispute the emphasis of the military as a theme in ECE look at military artefacts as war artefacts and as a way to promote war and fighting, rather than as ways of celebrating National Day and promoting national belonging. Chinese children are exposed to the military parade on the holiday. They watch it on TV and in this way, are familiarized with it. Norwegian children have no such experiences. The military is "hidden" from civilian life and the national holiday is celebrated with a children's parade for kindergarten and school children and no military parade. The analysis of this material surfaced that exposure to military artefacts is not an expected way to promote cultural and national belonging in Norway. Based on our understanding of cultural sustainability and cultural formation, belonging, national pride and cultural formation are facilitated in contradictory ways.

6. Discussion and Further Challenges

The analysis materialized that available artefacts in Chinese ECE represent historically established educational ideals, such as patriotism and educational practices offering military artefacts. We trace established Chinese traditions for bringing military artefacts into play as described by Boretti [24]. We also suggest that the elements of "showing off" and play in Chinese military parades [26] are mirrored in the interview material and are close to an intergenerational approach to play, children and childhood. We also found that war toys or military artefacts are unwanted among Norwegian participants who referred to the danger of inducing aggression and violence, as pointed out by Hartmann and Borugere [17] and Korsvold [25]. The historical Chinese approach to military artefacts described by Boretti [24] that is also surfaced in the present material provides insight into knowledge and consciousness regarding the educational possibilities embedded in the chosen artefacts enrolled in play and makes it evident that the material parts in educational practices, such as artefacts, should not be ignored

The conflicting perspectives that emerge from our analysis, made us as Norwegian researchers realizing that the taken for granted approach embedded in a skeptical approach to military artefacts can be seen differently. First, we realized that we and the Norwegian participants in the interviews, called these artefacts war-toys, making a direct line from the artefacts to something that represent wars. The analysis surface that this is not the sole relevant line when seeing them in the perspective of belonging and protection. Second, the conflicting perspectives made awareness of national belonging and patriotism, that probably is present in any nation. Despite the relevance of patriotism when discussion celebration of national days, this aspect is not touched upon by the Norwegian participant. This may indicate that the Norwegian national pride is embedded, taken for granted and seldom confronted. Aware of the patriotic aspect, it became relevant to consider that patriotism can be facilitated in several ways. Can the acceptation of young children using knifes in Norwegian ECE institutions be traced to Norwegian patriotism towards individual capacities to survive by both making hunting equipment and protecting materials? Knowledge of how to use knifes makes us survive in nature, like good Norwegians are supposed to and might form a distinction to people from other nations. Third, the notion of childhood as a separate life phase is challenged, the conflicting perspectives depict how entanglement between generations are present, anyway.

In this article, we aim at providing more insight into social and cultural sustainability, understood in the ECE context as creating surroundings (i.e., artefacts) that include and stimulate positive interactions, such as promoting a sense of community and a feeling of belonging to the community in which we live by being safe and attached to the local area. Although both the Chinese Guidelines and the Norwegian Framework plan forward belonging to the local area, the analysis showed how cultural formation and where to belong are intertwined. The conflicting perspectives are mostly related to the national level; to military artefacts as conditions to forward unity and belonging in a nation. Despite of the limitations of our material for analysis, the analysis surface how the historical and demographical context is intertwined in what is highlighted as relevant for belonging. In a homogenous country with a small population—like Norway, the love of the country can be taken for granted. In a heterogenic nation with an enormous population—like China, it makes sense that education forward national unity. From the analysis, we suggest that cultural formation potential from involving military artefacts in ECE practices can constitute belonging, depending on where belonging is meant to be situated. This reveal that further investigations about artefacts as conditions for social and cultural belonging in a variety of nations, is of major interest.

Our analysis also indicates how belonging, being safe and being protected are closely connected. Being protected and being safe do not necessarily represent values of belonging and positive interactions, in a wider context. Belonging is often facilitated by building borders against those who do not belong or belong elsewhere. From an international perspective, that does not represent safety. Therefore, the presented contradictions and

contradictive approaches to military artefacts raise questions not only about how to facilitate belonging but also where to facilitate belonging. Local belonging is most relevant for children. This serves as an argument for approaching local and national themes that unite, such as the military, for young people and form a contrast to the argument that children are too young for such issues.

These conflicting perspectives on belonging locally, nationally or internationally demonstrate a paradox within social and cultural sustainability. As human beings, we need local belonging, but if protecting local belonging causes wars that are damaging for humans, nature and cultures, we do not develop sustainability. To get around the paradox, we might ask whether the notion of belonging must be something that excludes others who belong in other nations. We ask whether belonging locally or internationally can be facilitated without references to national borders. Can belonging be facilitated without viewing those who belong elsewhere as a threat?

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CHAPTER 14

Global Paradoxes and Provocations in Education: Exploring Sustainable Futures for Children and Youth

Jorunn Spord Borgen and Elin Eriksen Ødegaard

Abstract

Global trends in education are accompanied by both paradoxes and provocations. The paradoxes constitute inherent educational dilemmas, such as the paradox of institutional education, wherein social rules and mandatory tasks are played out as a means of imparting lessons about freedom and independence. Our argument in this chapter is that we should reconsider the 'future' of planned and controlled education and instead become open to the perceptions of two groups that are at the forefront of educational futures – namely, children and young people and various experts on children and childhood. They meet face to face or indirectly on a daily basis in various educational contexts, and their experiences are interdependent and often paradoxical. This chapter explores possible sustainable futures in education as articulated by children, youth and child experts and highlights several qualities that sustainable futures will require, in relation to UNCRC article 28; children's right to education and article 29; that education must develop every child's personality, talents and abilities to the full.

Keywords

education – sustainable future – child experts – children and youth – awareness pedagogy

1 Introduction

As pointed out in the present volume's introduction, 'sustainable futures' is a political and utopian concept that has become prevalent in the global agenda. On a global scale, we have recognised that world cooperation, global and local

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agreements, and common actions are necessary to solve problems and secure further life for generations of humans, animal species, and plants. As a concept, sustainability encompasses dimensions such as social justice, health, nature and natural science, economics, and government as well as local practices and individual agency and participation. We agree with Peter Kemp's claim that sustainability is an ethical concept addressing the questions of what is considered a good and worthy life for generations to come and how to live according to values that can ensure the longevity of life on Earth (Kemp, 2013).

Futuristic thinking is embedded in all forms of education as children are the hope and future of any society. At the threshold of the twentieth century, discussions about the future were certainly different, but they shared certain similarities to corresponding discussions today. In *The School and Society*, Dewey (1899) argued that modernity brought with it industrialism and the growth of big cities and that society as an organic entity was thus rendered invisible to most people. The purpose of education was to make society visible again and, since culture is the condition for learning, to make culture 'cultural' again (Lundgren, 1986). Ellen Key, in this volume (Chapter 2) followed up on the strategic role that education occupies in society.

Education consistently seems to function as a societal tool for keeping society visible and perceptible. The character formation that is a key objective of education then becomes a matter that is not merely for our own time but for posterity. Global trends in education are accompanied by both paradoxes and provocations. Paradoxes in education are inherent educational dilemmas, such as the paradox of institutional education, wherein social rules and mandatory tasks are played out as a means of imparting lessons about freedom and independence. It does not necessarily follow that freedom and autonomy are compatible with actions that are considered necessary in the name of sustainable futures (Gough & Scott, 2007; Hafner-Burton & Tsutsui, 2005). Sustainable futures should consistently impart knowledge about what is needed, political decisions and actions, sensitivity to local culture and global solidarity, and awareness of relations from both a micro and macro perspective. Since the Brundtland Report (WCED, 1987), sustainability has commonly associated with the appeal to not compromise future generations' ability to meet their needs. Sustainable futures will require advocacy and action for a better balance between social needs, resource consumption, and economic growth. In our study, we touch upon these well-known connections related to the United Nations Convention on Children's Rights (UNCRC) (United Nations, 1989) article 28; children's right to education, and article 29; that education must develop every child's personality, talents and abilities to the full. More specifically, this study aims to contribute to new ideas for education, ideas that

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take into consideration the message from young people around the world and from an interdisciplinary group of child experts. Entering dialogue and making decisions regarding how best to organise societies and education systems may lead to provocations on both the political and personal levels that will challenge education as a system as well as local practices. A recent example of provocative action on the part of the younger generation is the school strike movement, which began with Greta Thunberg's silent protest every Friday from August 2018 outside the Swedish Parliament and grew rapidly to become one of the biggest environmental protests the world has ever seen.

According to the Norwegian educational philosopher Lars Løvlie (2008), a central pedagogical paradox that is frequently discussed in German and Nordic education traditions and is often associated with the paradox of making rules and regulations for the purpose of educating the autonomous child, is as follows: "discipline the child without making the child a slave; impose rules on the child but remember to allow for his free judgment; praise him but don't foster his vanity; constrain him but let him taste his freedom" (Løvlie, 2008, p. 1). The pedagogical paradox in education is that "autonomy – the freedom of self-determination – both belongs to the child and has to be brought into being by the intervention of others" (p. 5). Thunberg's personal initiative shows radical autonomy and is an example of a provocation directed towards the older generation as well as education as a system and as a set of practices. Even if her initiative was originally individual, it was founded on the principle of solidarity with planet earth.

The need to engage explicitly with values when making decisions about the future direction of education has been overlooked, particularly in times when effective education, big data, and cultures of measurement have been dominant (Biesta, 2010). 'The future' is unpredictable and still very present in educational policy. The future can also be considered an attitude and thereby represents a value judgement. When we consider 'the future we want', do we then mean progress, or do we imply value? Built into educational policy is the optimistic idea that through education the future will be better. In *The Beautiful Risk of Education*, Biesta (2014, p. 2) argues against 'strong' ideas and practices of education and advocates for a 'weak' approach through seven 'themes': creativity, communication, teaching, learning, emancipation, democracy, and virtuosity. He argues against the current dominant ideas in education and the "desire to make education strong, secure, predictable, and risk-free" (Biesta, 2014).

Our argument in this chapter is that we must reconsider the 'future' of planned and controlled education and instead become open to the perceptions

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of two groups that are in the midst of educational futures – namely, children and young people and various experts on children and childhood. These groups meet face to face or indirectly on a daily basis in various educational contexts, and their experiences are interdependent and often characterised by paradoxes. To be positioned a 'child' or 'young person' and the notion of 'adults' itself places children and young people in a generational temporality as not yet adults, even if their life experience can be as rich and varied as adults' (Kraftl, 2020). This chapter seeks to explore possible sustainable futures in education as articulated by a group of children and youth and a group of child experts selected by the authors. The authors have for many years led a Nordic network of children's culture researchers, participated in dialogues, and witnessed a change in discourse, which shifted from a primary interest in children – in their right to play and to enjoy childhood in the here and now, largely inspired by the UNCRC – towards a prime interest in children's connection with society at large, nature and child-created culture in a complex world. With this background in mind, our research questions are as follows:

a What concerns and ideas regarding the 'future' we want do children and young people articulate?
b What are the concerns and ideas about the 'future' we want for children from the perspective of an interdisciplinary group of child experts?
c How can these 'futures' contribute to the development of sustainable pedagogies for the future?

The chapter will begin with a discussion of how we might manage global paradoxes and provocations in education. The chapter goes on to present statements and perspectives on the kind of future that children, young people, and child experts want and concludes with insights that have the potential to inspire new improvements aimed at achieving sustainable pedagogies for the future.

2 Paradoxes in Education

Education's role in global development and its impact on the well-being of individuals, society, and the future of our planet are unequivocally highlighted in scenarios for education, such as the Education for Sustainable Development (ESD, 2030) launched by UNESCO and The OECD Future of Education and Skills 2030 Project launched by the Organisation for Economic Co-operation and Development (OECD). Across different visions of 'the future we want', these scenarios offer metaphors of time travel towards an unknown future.

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These scenarios also define 'learning objectives' (UNESCO, 2017) and 'learning frameworks' (OECD, 2019) that not only address learning and skills but also each student's well-being within a sustainable future. This optimism is also built into practice; we can see the continuation of global policy ideas of controlling education by measurement, for example, in the OECD Programme for International Student Assessment (PISA) project, which has had a substantial impact on children and young people in kindergartens and schools in many countries. However, it has also prompted a substantial amount of research that criticises the ideas embedded in PISA.

Education is increasingly governed by digitisation. At the global, national, and local levels, we have witnessed a rise in big data made possible by digitisation. Database architectures, datasets, codes, algorithms, analytic packages, and data dashboards are all among the emerging technologies that are contributing to the development of the 'quantified teacher' (Buchanan & McPherson, 2019, p. 28). This wealth of data has generated new norms against which students are measured as well as new moral codes and social expectations and has defined students against data-derived categories (p. 33). Ronaldo Beghetto (2019) has highlighted the paradox of combining large-scale assessments (LSA) with creativity, problem solving, and personalised learning in the context of LSA formats. For instance, PISA assessment emphasises sameness, and any instincts towards creativity are hampered by time-limited test conditions. This emphasis on sameness is also found in the school system, wherein groups of students will typically be of the same age, doing the same thing, in the same way, at the same time, in pursuit of the same outcome. Sameness in LSAs is reflected in the fact that they tend to be standardised measures. Test designers aim to control for or remove any interfering factors that may result in inaccurate inferences with respect to observed differences in scores between test takers (Beghetto, 2019, p. 313). Conversely, personalised learning is unique. Judgements about creativity are situated both temporally (in a particular time) and contextually (in a particular place). As such, that which is considered creative in a fourth-grade classroom, Beghetto argues, may not be considered creative in another fourth-grade classroom, in an eighth-grade classroom, or in any classroom in the next year. Creativity is dynamic and dependent upon each individual person. A teacher's awareness of such dynamics appears to be crucial in enabling them to supervise, coach, and develop new approaches to teaching and evaluation. Critical voices claim that various alternatives to measurement exist for ensuring a good education.

The idea of progress through control as a means of evaluating education can be replaced by addressing values related to education, and to UNCRC article 28 and 29 about respect for children's dignity and the development of

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every child's personality, talents and abilities to the full. In their study of PISA results, Faldet, Pettersson, and Mølstad (2019) compared countries with high performances in PISA to lower-performing countries, in relation to the Human Rights Watch World Report 2017 (Roth, 2017). Based on their review of this report, they ascertained that physical punishment is implemented in all five countries ranked at the top of the PISA list (OECD, 2016). In some of the countries, physical punishment is banned from school but allowed in homes, and several of the countries with high PISA rankings are guilty of human rights violations. Among the countries that stand out with good results in terms of high levels of well-being and quality of life, with, according to PISA, good results in math, that prohibit physical punishment of children and students, and appear to be relatively successful in international comparisons, is Norway (Faldet, Pettersson, & Mølstad, 2019, p. 50), and other Nordic countries (p. 48).

In education, paradoxes are troublesome and of no benefit to educational practices; they are also a nuisance for those with a definite goal in mind (Løvlie, 2008). While the manner and evidence-based practices of the politics of education are 'what works', educational researchers argue that no direct causal relationship exists between teaching and learning (Kvernbekk, 2016). Education in kindergarten, early childhood institutions, primary, and secondary schools is dependent upon practitioners' and teachers' careful consideration of how something can be made to work within their cultural context (Kvernbekk, 2017), and employ educational tools and didactics that allow students' voice (Aarskog, Barker, & Borgen, 2018). Thus, in a study of Norwegian education policy documents, Mølstad and Prøitz (2019) found that teachers are expected to be interpreters and translators of policy and also to play the paradoxical role of delivering expected learning outcomes to children. They are simultaneously expected to provide these children with life opportunities and to support them as unique and autonomous individuals. Teachers appear to be obliged to strike a fine balance between 'strong' and 'weak' ideas and practices of education (cf. Biesta, 2014).

Futures are not fixed. They are imagined and created, but the past will always create premises, some of which can come as a surprise, as the Covid-19 pandemic outburst in 2020 highlighted a new concern regarding the prevention of the spread of communicable diseases. Teachers will face new demands. School attendance in the midst of epidemics or pandemics will demand new considerations, not only for the sake of the children, but also for the teachers themselves and the population in society at large. Sue Robertson reminds us that we must be willing to imagine the creation of institutions and social relationships that maximise outcomes for all individuals rather than for a few (Robertson, 2005). When we look to the past, nostalgia is not necessarily the best guide. The

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future, as well as the past, is a product of human action and agency and of how we as societies, professions and individual teachers respond to the unexpected. Connell's (2009) historical overview of teaching notes that education has never been static, and that education constitutes a complex assemblage of actions that cannot be reduced to 'tick-box' standards. Education is an embodied activity, a form of emotional labour, and it is located within systems.

According to Elliot Eisner (1984), imagination is required in education. While theory is general, classrooms and students are particular in character. Teachers must be able to perceive any connections that exist between the principle and the case. Unless teachers connect with their students, they will not contribute to their formation as participants in society. What skilled teaching requires, Eisner argues, is the ability to recognise dynamic patterns, to grasp their meanings, and the ingenuity to invent ways to respond to them: "It requires the ability to both lose oneself in the act and at the same time maintain a subsidiary awareness of what one is doing" (p. 25). When teachers draw on educational imagination, they consider options and can invent moves that will advance the situation from one stage to another. Preparedness for the protection of children will require the ability to imagine the unexpected and to systematically work upon the ideas, ways of thinking and procedures for new scenarios. "An imaginative leap is always required" (Eisner, 1984, p. 25), for instance to see the potential and invent moves that will advance situations and understandings, local and global.

As the Covid-19 pandemic that swept the world beginning in from early 2020 is a fresh example of the need to be prepared for the unexpected. Society agrees upon the necessity of innovation, new ideas, and solutions to new and old problems. To understand the relationships between political conditions, both global and local, and the people living within those conditions, focus should be on the children and the professionals they meet. We should also focus on the child experts that children and young people may not necessarily meet in person during their school day, since experts can possibly have power through their impact on knowledge transfer and innovation-action at a macro- and micro-level. Awareness as a dynamic approach is instrumental to understand the fundamental relationality in which children live their lives conditioned by so many aspects also by own agency in the world, as the Swedish young girl, Greta Thunberg, can illustrate. Starting out with a personal engaged action, she has inspired numerous peers and adults all over the world, becoming an icon of children's agency, and has had an impact on global conversations (for example, at her appearance at the UN in autumn 2019).

Here, we take a closer look at how children and youth and child experts, when invited to participate in different processes of collaborative exploration,

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conceptualise their engagement and operate between societal and institutional frameworks, rules and regulations, and their personal intuitive and creative engagements in education. As described earlier, the OECD Education 2030 project is among the global initiatives of future planning in education. This project operates a website on which interviews with students are posted. First, we explore how these students articulate their concerns and ideas for the 'future' that they want in videos from this OECD 2030 website. Second, we explore child experts' concerns and ideas for the 'future' that they want, as expressed and discussed in an interdisciplinary workshop.

3 The Future Children and Youth Want

Considering the global impact of projects undertaken by UNESCO and OECD that seek to pave the way for a future-oriented education system projects on policy development in education, our interest here was in how students talk about the future they want and how their voices are expressed and heard within this context. To ascertain what children and young people from all hemispheres think about the future of education, we have built on information from video-recorded interviews with students who were selected and given a voice on the OECD Education 2030 project's website. Through "a common language and understanding about broad education goals that is globally informed and locally contextualised", the OECD 2030 project position paper (OECD, 2018) explains how this language is "under construction in co-creation processes" among policy makers, researchers, school leaders, teachers, students, and social partners from around the world (OECD, 2018, p. 2). Such language supports 'weak' ideas and practices in education (cf. Biesta, 2014). However, when discussing which competencies are needed to transform our society and shape our future, the OECD position paper also echoes a desire to make education 'strong', secure, and predictable:

> If students are to play an active part in all dimensions of life, they will need to navigate through uncertainty, across a wide variety of contexts: in time (past, present, future), in social space (family, community, region, nation and world) and in digital space. They will also need to engage with the natural world, to appreciate its fragility, complexity and value. (OECD, 2018, p. 5)

Key transformation processes include the mobilisation of (student) knowledge, skills, attitudes, and values through a process of reflection, anticipation,

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and action; these processes develop the inter-related competencies that students require to engage with the world. Set out as a 'learning framework', differing explicitly from the PISA assessment framework, the project still reflects the pedagogical paradox by defining the competencies (and constructs and measures for such competencies) that students will need to thrive in the future and for young people to be individually creative, responsible, and aware. Rather than reshape the invisibility of society to references in the material world, as Dewey (1899) asserts education can do, the future of education in the twenty-first century, as described in the OECD 2030 project, seems fluent, nonmaterial, and language dependent. Our starting point for the analysis of these video-recorded interviews is the understanding that the educational paradox is embedded in all educational thinking, and we are particularly interested in how students articulate their understanding of these paradoxes.

On the OECD 2030 website, from spring 2019, students were given the opportunity to give statements about the future they want. The OECD asked students to describe their desired future and "to articulate their hopes, dreams and the actions needed to attain well-being. Listen to what they're saying". These interviews with students are video-recorded and edited by OECD staff. We interpret the videos as developed through a process in which the students voluntarily, having given their consent for the interviews' appearance on the website, have chosen a topic that they wish to talk about, and that they have received a degree of help with scripts and points. We do not know the details of these recording and editing processes. Therefore, we presume from the information regarding the intention to give voice and agency to students that they have had a voice and been heard. Video interviews can convey a sense of ordinariness of mediated communication amongst many young people and can counter the 'pressure of presence' of being heard and seen by unspecific others, with a sense of ease (Weller, 2017). However, a limitation of our use of these interviews is that the videos are aimed at various audiences within a particular context and were not created specifically for research purposes.

During the two-week study period in the summer of 2019, 17 interviews with students aged 10–18 were available on the OECD 2030 web site. Based on available information about their place of living, country, age and school, we found that these students live in all hemispheres and are from various social groups. We selected these 17 students as informants for our study. Later, several more interviews with children and young people were made available on this website. Due to ethical considerations regarding the anonymity of the students, who have no control over the use of these internet resources, we have chosen not to give more detailed information about each informant in our study. We transcribed the 17 interviews, and then conducted a conventional content

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analysis (Hsieh & Shannon, 2005) of these transcriptions. We then searched for key topics related to education and statements that illustrated how the students articulated their concerns and ideas of the 'future' that they want in terms of education. We organised the statements around topics of concern: education, individuality/agency, capabilities, community, health, quality of life, and environmental issues. Generally, we saw that economic and cultural contexts had considerable influence on the students' concerns, which is also reported in a study of student experiences and quality of life in South Africa, by Savahl, Malcolm, Slembrouk, and September (2015).

3.1 *What Children and Youth Say*

In these interviews, when students talk about education, they often refer to 'we' and talk about 'our' experiences in school and in teaching. In discussing educational futures, some students express concerns about the availability of education for all. "What I want for the future of my community is a bigger school so that kids would want to go to school more" – while an older student reported that "what is currently missing in my education is that I must come away from my home to get that education that I need". Other students, who perhaps take the availability of education for granted, wanted a future in education where mentorship is valued and a curriculum that encourages students to do voluntary work (and for such work to be credited in school), and "where different types of compassions can thrive, and change can happen in the world".

Messages from the students about individuality and agency convey ambivalence. Greater awareness of students' individuality is required. Everyone learns in different ways at different times, and "all education should be about all the possibilities of life and [to] find out what our strengths and interests are". However, students also commented on the challenges of understanding the individuality vs standardisation complex – "are we equal or does the system want us to become all equal?" – and argued that "we need open-ended projects that can help us to bring out the best in ourselves and focus on the areas that interest us". School and teachers' trust in student capabilities seems to be a concern shared by these students, and one student said that "many adults still don't have faith in our ability". Another student said that "teachers need to have knowledge about us children having the virtue of being creative".

In discussing the school and the community, a student stated, "I want to become a member of a community in which students can make a difference". Another student talked about "the others" in the community that they want to help. Social inequalities became evident when a third student said, "I would like the community to be safer", and "the future I want for the community is

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more awareness of people's health". These students also voiced their awareness of challenges in their communities and for the future. For example, one student wanted social education in order to raise awareness on what a good community is and how to maintain it for future generations. Another student, who had to leave home to get further education, said, "I want to go back to my community and tell the kids what I have been doing and try to inspire them to get education". A well-situated student wanted to know more about the issues with which people in other countries (particularly countries with more poverty and rural areas) struggle and to help them solve their problems.

Housing is a key quality-of-life concern for many: "I want everyone in the world to have their houses to live in where they can feel comfortable, safe and happy". One student said: "Quality life to me means that a person could have access to good health, good education and facilities such as hospitals near-by and schools". Only a few students mentioned their concerns about environmental issues; this statement, however, contained a clear message of concern: "Western consumption harm[s] the environments and [our] communities".

From these interviews, we learned that these students' desire for the future they want are governed by material issues, such as security, housing, health care, environmental care, and access to education for all. They understand the impact these primary needs have on their well-being. They are also concerned about their role in society and wish to be given the trust and space they need to use their capabilities in school as well as in their communities. A few students referred to their difficulties of understanding the individuality vs standardisation complex and wanted more space for individuality in school. It seems that all students lack access to the discourse surrounding the educational paradoxes and dilemmas of which they are aware and which they experience throughout their everyday school lives. However, the students seek awareness among adults, teachers, and society regarding the issues they raise with respect to individual agency and challenges in their communities and for the future. All in all, the students' language echoes weak ideas about education within a context of strong messages, ideas, and educational practices (cf. Biesta, 2014).

4 The Future That Child Experts Want

We were interested in the perspectives of experts because we consider expertise to be of high value for children's futures. The roles of expert competencies and insights into policy design and practices in institutions for our children and young people – such as kindergartens, schools, and health institutions of various kinds – are seldom celebrated, often vaguely integrated, and

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sometimes contested (Young & Muller, 2014). Even if cross-sector partnerships, alliances, and collaborations have become commonplace in education and important for the promotion of kindergartens and schools as arenas for future societal policy designs, these professionals' experience, nonetheless, is that the complexity of their expertise has little or no voice in policy formation. Particularly at the science–policy interface, heterogeneous and often competing discourses come into play among researchers vs. political decision makers vs. first-line professionals (Lange & Garrelts, 2007). This heterogeneity is characterised as a transdisciplinary paradox (Hollaender, Lobl, & Wilts, 2008), since transdisciplinarity offers perspectives on how problems can be faced and solved (Klein, 2015).

The starting point for this workshop was interdisciplinary expert exchanges concerning which practices and pedagogical research topics are expected to be valid in the future in an urban municipality of Norway. The aim of the workshop was, first, to collect and create research data through a dialogue about 'the future we want' for children from the perspective of children and childhood experts; the second aim was to initiate a common exploration that addresses the paradoxes that experts live by and to create a common space for sharing ideas of what is required to contribute to sustainable futures. This workshop gave opportunities to share thoughts and expertise across disciplines.

We chose to hold a workshop as a research methodology for several reasons. Of chief importance were time efficiency and the motivation to engage in activities with the possibility of sharing, developing, changing, and learning. Acknowledging that experts are often dedicated professionals with work opportunities and restrictions, it appears that they will need to critically consider how they spend their time while still satiating their interest in learning from other experts. Since they also often will be self-determined in the judgement of time-use, we decided to create a situation that would include opportunities for learning as well as networking for future collaborations. A future-oriented workshop could fill these criteria.

According to Merriam-Webster (2016), the term 'workshop' can be traced back to 1556 with the definition of "a small establishment where manufacturing or handicrafts are carried out". Today, the term 'workshop' is used in various contexts, often with respect to an arrangement whereby a group of people learn, acquire new knowledge, perform creative problem-solving, brainstorm, or innovate in relation to a domain-specific issue. The methodology was further inspired by 'futures workshops', which refers to the work of Austrian futurist Robert Jungk, who developed the basic form of the workshop for the purpose of enhancing democratic municipal decision making in the 1950's (Müllert & Jungk, 1987). The main purpose at that time was to activate a basis upon which

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people could cooperate to create ideas and strategies for the future. Originally, these future-oriented workshops were a tool for collaborative problem solving. In social sciences, workshops are also used for collecting information and creating ideas through dialogues comparable to focus group interviews. In addition to collecting and creating information, a future-oriented workshop can act as a tool for sharing and social learning, which is particularly beneficial if the people taking part in the workshop are also responsible for bringing about change and have the power to assert influence within their fields (Vidal, 2005). In this study, "Workshop – The Future We Want" was a half-workday arrangement whereby a group of childhood experts shared their knowledge and motivations for concern about children's futures; in the workshop, they brainstormed, performed creative problem-identification, and unraveled ideas about possible directions for future research and pedagogical practices.

The participants (12) were invited based on their special expertise in their fields so that they would be complementary to one another with respect to expertise. They were either (a) high-profile scholars (professors) in fields such as psychiatry, medicine, physiotherapy, education, and early childhood pedagogy; (b) teacher educators and PhD students; (c) leaders and administrative personnel representing owners of schools and kindergartens; or (d) experts representing children's best interests, such as non-governmental organisations (NGOs). The overall framework for the workshop was 'sustainable future', and the aim was to draw attention to a range of expert knowledge on children. Before the workshop, the special invitees were informed that a research assistant would take notes for research purposes and they were given a series of questions to prepare for the discussion. These questions were as follows:

> What is needed for us, as experts in various areas of interdisciplinary cooperation, to help create the future we want for our children within and in relation to education? What do we want to achieve on behalf of each child? What can interdisciplinarity bring about for research? What might sustainable pedagogy for the future look like?

The workshop was led by the authors, Elin Eriksen Ødegaard and Jorunn Spord Borgen. A research assistant took manual notes from the shared dialogue and generated four pages of clean data altogether, all of which are included in the material. Post-it notes from the group sessions and the authors' personal notes are also included in the material. The organisation of the workshop was as follows:

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1. Introduction of experts and sharing expert statements about the future we want
2. Identification of main topics, which led to the identification of three main topics
3. Group session working more concretely with issues concerning problem-solving related to the three topics
4. Groups shared main ideas
5. Dialogue about main ideas and outcomes and possibilities for future research
6. Short evaluation
7. Analysis of the presentations and dialogues.

According to Ørngreen and Levinsen (2017), the existing research predominantly focuses on how to conduct workshops and less on workshops as research methodology. As this workshop was organised foremost for the purpose of generating data for empirical research and involved preparation, critique, and imaginative thinking about the future we want for children as experts in children and childhood, we analysed the qualitative data accordingly. We organised the prepared statements and dialogues according to the topics of concern:

– Interdisciplinarity: what values, contributions, and pitfalls can interdisciplinarity bring about?
– Critiques and provocations: what kinds of critiques and provocations were highlighted?
– Wishes and ambitions on behalf of children: what are the main ideas for the future?

The presentation of self and agenda resulted in a series of meta-perspectives. In the following, we present the experts' perspectives on the future they want for children organised into four main categories and a fifth point that sums up their views.

4.1 *What Experts Say*

During the workshop, the main concerns that emerged in the experts' discussion about the future were the pedagogical paradox and dilemmas that they face in their role as experts in addition to discussions about what is 'good' for children and young people. In discussing their role in society, some experts expressed concerns about how they might come close to and keep in touch with the children who are their clients: "All the ideas that we as professional[s] have, of what children need, take up a lot of space in policy design and what we consider 'good' professional practice". We can lose sight of what the child is here and now. Are we losing the language of awareness and closeness in

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micro-practices and responding merely to the signals and language of politics? For instance, one expert was "concerned about the concern" about children as sedentary beings and objects of health policy. Rather, we can learn from each other – both children and adults – that we are all corporeal beings in the world and that physical experience and language are interdependent and should not be separated. As experts, they are also concerned about the ways in which their professional language differs from the everyday language. More reflection on our own language as professionals will generate greater opportunity for change in micro-practices and everyday moments in kindergartens and schools.

4.1.1 The Paradox of Early Efforts and 'Future' Prospects

The experts were also more concerned about the very young than they were about older children and adolescents, and this was justified by the sense of responsibility for the possible future of every single child. These concerns were related to the pedagogical paradox; Certain boundaries must be set; however, the child must also find his or her own way. The question of what constitutes pedagogy in this framework is a professional one: if you frame the child in a certain way, why and how do you know it will work well? The experts wanted greater awareness of procedural thinking: how to proceed should be more thematised and should include asking questions such as "What if?".

Early efforts can lead to positive results. That positive outcomes is key, but we know little about the long-term outcomes of our professional decisions here and now. This is a dilemma, as one should not do anything for which there is no good evidence. However, it takes a long time for results to make themselves known and there is a lot from which you get no evidence. Should we ignore it simply because we do not know if it has an effect? For example, we can see that some children are living in difficult conditions. Controlled trials cannot be conducted among children experiencing neglect. Regarding children who have developed an identifiable disorder, perhaps related to these circumstances, should we not give them some support? As experts, we have some evidence that if these children are supported, they will visibly improve (at least in the short term), but it is difficult to say whether this will continue for 10 or 20 years. Recommendations may be made according to the level of evidence available, with some levels of evidence higher and some lower, but even if a measure does not have the perfect level of evidence it can be implemented nonetheless, as it is based on a comprehensive professional assessment. On the other hand, society and child experts know little about children's first years of life prior to their attendance at kindergarten. Should we work more systematically to provide parents with instrumental aids, teaching parents how to interpret and communicate with children? This is a key issue for some experts with respect to health and pedagogy.

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4.1.2 Knowledge Dialogues and Good Practices

The positive aspects of kindergarten and school are not always made visible; rather, they must be experienced through shared practices. Experts often enter classrooms and stay for a short time before leaving again. Experts and researchers must challenge practices but not destroy that which is good within the educational context. For instance, when children's involvement (cf. UNCRC, art. 12) became integrated into the curriculum, kindergartens suddenly had to professionalise the space and circumstances to accommodate children's participation. One of the researchers observed kindergarten practices and found that some activities were democratic and that a lot of good pedagogy was evident, but the activities were also guided by the employees' understanding of democracy. Can asking children what they want to eat and where they want to go be said to constitute democratisation? In that study, they saw that children became very tired of deciding these things. "Who am I to play with?", on the other hand, was of more immediate importance for the children. The experts recommend more open and inclusive institutions with the aim of developing dialogical practices that achieve common understandings of culture and context for the children. It is not sufficient to merely talk to and understand each other; rather, the practice of doing something meaningful together is required for transformation to happen.

4.1.3 Ideas of the 'Good' Expert

Experts have a common mission and social mandate. This changes over time, and experts and researchers also contribute to these changes. For instance, one of the experts at the workshop was fascinated by how rapidly things can change: "The way we think the world is and the image of the child (within which our mandate lies) can suddenly change". For instance, politicians who earlier paid no attention to children in their municipality changed their conceptualisation of small children in kindergarten and set out demands for changes of routines and practices. The experts involved appreciated these changes because this was more in line with the professional understanding of small children's needs. However, knowledge exchange across the various sectors of society is lacking. For instance, kindergarten education knowledge and pedagogy are not transported to other institutions and sectors in society, such as into the school and health system and vice versa. Parallel insights that do not become synergy between sectors become society's smallest multiples of knowledge about children and young people and are not sustainable for the future. Sustainable pedagogy must be thematised through more dialogue to develop our common language about what this means to us and the possible positive impact for children and young people.

Sometimes, the experts agreed, we must look up to determine whether we are on the right course. Changes in the global agenda include the examples

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of Greta Thunberg and a new word in Sweden known as 'flight shame' – who could have predicted this? Suddenly, a sympathetic wave has swelled around this that we can either join or resist. What does this mean for our understanding of children and young people, power, and agency? As experts, we have some of the evidence for knowledge but, at the same time, we should remain open and do the investigative work to understand where we are headed and where we want to go? According to the experts, ambiguity and imprecision are present in everything they do. They can be caretakers with good intentions without agreeing on what is best in a particular practice. However, the experts agreed that it is important to consider what kindergartens and schools are already doing. Sustainable pedagogy already exists: "we have to find it and spread it" and make it visible. In sustainable pedagogy, those paradoxes should be discussed more so that it is easier to agree on an ideological level and so that 'the child and I' are partners in this. Ultimately, it is the child's understanding and awareness of what they experience that is the end result and not what experts thought was best for the child. They also posed the question of whether we can create a pedagogy that makes us present in the moment, a pedagogy of awareness that constantly renews us and in which we are constantly asking "Where is the world now?".

5 Conclusion and Provocations

So, how can these 'futures' contribute to the development of sustainable pedagogies for posterity? The pedagogical paradox is that education is dependent upon what is understood as important knowledge at a certain time within each new generation, but that education is also instrumental for the development of independent thinking and acting subjects in a future, unknown world. Biesta (2014) argues for a 'weak' approach to education, emphasising creativity, communication, teaching, learning, emancipation, democracy, and virtuosity. From the interviews and the workshop, we have many examples of these features of what is described as the desired future of education. However, paradoxes are not followed by solutions, and among the dilemmas are the many versions of visibility/invisibility of the world (cf. Dewey, 1899), the fluency and non-materiality of education in the twenty-first century, and the significance of language for dialogues across sectors and societal, institutional, generational, and personal perspectives.

The OECD 2030 interviews with children and young people yield new insights into the concerns that children and young people have regarding their well-being and access to education. They want safety and the opportunity to

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be themselves and become who they want for the future. At the same time, they want belonging and to see themselves as participants in the good of society. When it comes to the specific learning context, they emphasise the importance of being taken seriously as learners and as individuals, particularly with respect to their knowledge, skills, and creativity, in line with article 12 in UNCRC. From these interviews, it seems children and youth echoes weak ideas of education, thus have little access to language and dialogues about pedagogical paradoxes and dilemmas they are aware of and experience within the context of strong ideas and practices in education (cf. Biesta, 2014).

The workshop brought different knowledge and topics from the perspectives of child experts to the forefront, some of which we could predict and some that we could not have foreseen. This can be explained by the choice of research methodology. As the workshop included many participants and took the form of a dialogue, it made space for prepared utterances (answers to a research request), listening, sharing, and collaborative problem solving; as such, new ideas and understandings easily arose.

We found that the experts are working towards a future for the best of the child (cf. UNCRC, art. 3). Experts are aware of the contradictory messages of strong and weak pedagogy (cf. Biesta, 2014); however, they require more extensive access to the micro context to be able to assess what measures are best both for the present and for children and youth to have the future we want for them. This implies time and space for the children and young people to talk and express themselves. However, as the students seem to have opinions and make choices, they also require access to a language with which to communicate with adults about the paradoxes they experience. Beyond the opportunity to speak and express themselves, children require an audience, their voice and expressions must be listened to and their view must be acted upon, as appropriate (Lundy, 2007, p. 933). Even if UNCRC is high on the educational policy agenda, this gives no guarantee of an interpretation that will function in a complex practice. When practice isolates children's participation from other concerns, the risk of a one-sided understanding with a focus on self-determination and individual choice ensues. This is in line with the critique coming from Nordic researchers of the UNCRC's interpretations of pedagogy. It seems to be biased towards a practice wherein the child's right to voice and influence is interpreted as denoting individual choice (Ødegaard, 2006; Lundy, 2007; Kjørholt, 2008).

How we deal with and talk about the educational paradox seems to be significant. An awareness pedagogy will be directed towards the ethical aspects of rights and obligations in society and will simultaneously safeguard the individual child. An awareness pedagogy will also need to consider paradoxes when

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judging the best interest of the child. Since the best interest of the child can be difficult to determine, balancing information and imagining scenarios is necessary in order to ensure the best possible situation. Educational imagination requires the ability both to lose oneself in the act and at the same time maintain a subsidiary awareness of what one is doing, according to Eisner (1984); an imaginative leap is always required. Some paradoxes that must be considered are outlined below.

We perceive, based on the material from these students and from our experts, the primacy of the belief in the free, informed individual who seeks knowledge and aims to develop a future in which everyone is an equal participant in society. However, the kind of student agency that is at the forefront of the OECD 2030 project could become an individual responsibility and a burden for children and youth, assuming that these competencies are typically middle-class characteristics and thus are not as inclusive as we want. Do students get help and support within a liberal education logic where standardised measures are laid down as proof of sustainable education for the future? Is there room for dialogues and language development about imagined possible futures and paradoxes?

Educational systems and policymakers voice the need for control and governance, implying that standards and measures should be implemented. The OECD 2030 project aims at developing a future imagined in the here and now, and, since the time span of the project is 15 years, it also implies ideas about how the future might possibly change. However, the kind of future the measures are aiming at, while also arguing for an imagined future over a longer time span, is dependent on the short time frame of the next political term.

The experts, on the other hand, owing to their knowledge of the complexities of social dynamics (particularly regarding how the weak always become outsiders), argue for acting here and now upon what they imagine to be possible futures for the children and youth they meet in their professional work. As these experts argue for a combination of horizontal and vertical transdisciplinarity (Sandström, Friberg, Hyenstrand, Larsson, & Wadskog, 2004), they also argue for a transdisciplinary attitude (Augsburg, 2014) between themselves as experts and researchers in different disciplines and people who know the problem area, for example, by working with it in practice or being affected by it in other ways.

We suggest an awareness pedagogy that will be directed towards the ethical aspects of rights and obligations in society and, at the same time, safeguarding the individual and securing the well-being of children and society, that is in

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accordance with UNCRC article 28; children's right to education and respect their dignity and rights, and article 29; that education must develop every child's personality, talents and abilities to the full. Such a pedagogy must be further theorised in line with the educational philosophy briefly introduced in this chapter. Sustainable futures will require greater awareness of children's situations, critical reflection, and new transdisciplinary initiatives and actions. Awareness must include reflections and actions towards the world and ourselves, towards actual life experiences. Or, will we – even despite this awareness and willingness to follow what the world is now – forget the educational paradox and dilemmas that are included in all pedagogy? Is acknowledgement of this paradox a premise for a sustainable pedagogy for the future we want?

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Article

Becoming Child and Sustainability—The Kindergarten Teacher as Agency Mobiliser for Sustainability Through Keeping the Concept of the Child in Play

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Abstract: In this article, we seek to theorize the role of the kindergarten teacher as an agency mobiliser for sustainability through keeping the concept of the child in play, ultimately envisioning the child as a knowledgeable and connectable collective. This implies a non-dialectical politics of multiplicity ready to support and join a creative pluralism of educational organization and teacher roles for sustainability. Comprising friction zones between actual and virtual multiplicities that replace discursive productions of educational policies with enfoldedness, relations between bodies and becomings. This changes the power, position and function of language in and for agency and change. Not through making the child a constructivist change-agent through language but through opening up the possibilities for teachers to explore relations between language and matter, nature and culture and what might be produced collectively and individually. We go via the concepts of *agencement* expanding on the concept of agency, and *conceptual personae* directing the becoming of the kindergarten teacher. Both concepts informed by the transformational pragmatics of Gilles Deleuze (1925–1995) and Félix Guattari (1930–1992). The overarching contribution of this article is therefore political and pragmatic and concerns the constitution of subjectivity and transformative citizenships for sustainability in inter- and intra-generational perspectives.

Keywords: early childhood education and care; the wicked problem of sustainability; child agency; the pedagogy of the concept; critical posthumanism; constitution of subjectivity

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1. Introduction

The overarching idea of this article is to theorize the role of the kindergarten teacher as an *agency mobiliser* for sustainability through keeping the concept of the child in play, ultimately envisioning the child as a knowledgeable and connectable collective. The teacher's role through this, conceptualized as a constant grapple with—and mobilization of—agencies as relationally generated, hybrid, multi-layered, often internally contradictory, interconnected and web-like, and that attend to what this makes possible in attempts to extend figurations of sustainability and the child. Sustainability conceptualized as a dynamic, negotiated, ongoing process of transformation and the child as a stakeholder and contributor, learning as transindividual and plugged into the environment.

This implies a non-dialectical politics of multiplicity ready to support and join the creative pluralism of educational organization and teacher roles for sustainability. Comprising friction zones between actual and virtual multiplicities that replace discursive productions of educational policies with enfoldedness, relations between bodies and becomings [1] (p. 29). This changes the power, position and function of language in and for agency and change. Not through making the child a constructivist change-agent through language

but through opening up the possibilities for kindergarten teachers to explore relations between language and matter, nature and culture and what might be produced and/or work transformationally, both collectively and individually.

To help us with this, we go via the concepts of *agencement* expanding on the concept of agency [2] (p. 6) (an untranslatable concept often translated into the English concept "assemblage" [3,4]), and *conceptual personae* directing the becoming of the teacher [5] (p. 64). Both concepts informed by the transformational pragmatics of Deleuze and Guattari [2]. They offer a philosophy of education and a *pedagogy of the concept* [5] (p. 12) building on the premises of a/the logic of intensities [1] (p. 29), where the driving force of the logic, is the movement and the intensity of evolutive rhizomatic processes, not dependent on a subject or an individual thinker. The overarching contribution of this article is therefore political and pragmatic and concerns the constitution of subjectivity and transformative citizenships for sustainability in inter- and intra-generational perspectives. Further, to create distinct cultures in the field of early childhood education and care for exploration and sharing, and position children as stakeholders and contributors. Becoming-child paradoxically being about the becoming of the teacher.

The article is our response to the special-issue-call *Reimagining early childhood education for social sustainability in a future we want*. Building on a neo-materialist ethics of affirmation [6] (p. 53), we explore the United Nations Convention on the Rights of the Child [7], articles 13 and 31, and the right of the child to have a childhood of senses. A right to freedom of expression, including a freedom to seek, receive and impart information and ideas of all kinds, and in all forms and shapes, depending on the (un)conscious choice of the child. Through this approach, we argue for a tuning in a/this *child force* [8] (pp. 2–7), as a way of supporting and disturbing habitual ways of thinking and doing sustainable kindergarten practices [9,10]. Ongoing processes of creating a future we want, preferable as a way of composing and/or bringing in the potential of the missing people [6]. Just to add before we continue, Deleuze and Guattari [5] (p. 2) are masters in concept-creations, not necessarily easily accessible as they do not define their concept in a straightforward way, but instead create them as invitations to think differently [11] (p. 1081–1082), and/or as active ongoing invitations *to difference*, thinking beyond categories of differences [12] (p. 38). An invitation loaded with potentialities for social sustainability within early childhood education and care.

Starting with the call from Deleuze and Guattari [2] (pp. 26–27) to make rhizomes, grow offshoots and be multiplicities, always already in the middle, we depart the article from past Norwegian kindergarten practice-memories, and/but created in the present through non-ending layers upon layers of collective autoethnographic writings [13] (p. 739). As a way of elaborating on the context of this example, we start with an introduction of how the example is connected to sustainable development and early childhood education and care.

2. Early Childhood Education and Care and Solidarity with Children of the World

The terms sustainable development and sustainability have a wide range of definitions but the 1987 publication of "Our Common Future" by the World Commission on Environment and Development [14] is one of the most cited. Sustainable development is here defined as a "development that meets the needs of current generations without compromising the ability of future generations to meet their needs and aspirations". The United Nations and its member countries have agreed upon and published several strategies for how to achieve the goals of sustainable development, where the report of Agenda 2030 [15] taking over from the Millennium Development Goals, being the last sustainability strategy developed. This report is an important cooperation agreement organized as a forward-looking call for all member countries—poor, rich and middle-income—to promote prosperity while protecting the planet as a way of improving the lives of people everywhere. Ending poverty and strategies that build economic growth are considered as interconnected and address a range of social needs, including education, health, social protection and job

opportunities, while tackling climate change and environmental protection. Qualitative education for all is within the strategy both as a goal (goal number 4) and at the same time defined as an important contributor in achieving all the other sustainability goals. In the field of Norwegian early childhood education and care, this responsibility is located as one of the core values for the kindergartens content and tasks [16] (pp. 7–10) where care, play, learning and formative development shall be worked upon in a holistic approach.

A common way of implementing the sustainability goals within the Norwegian kindergartens is to celebrate the United Nations Day [17] on October 24th. The day marks the anniversary for the charter of the United Nations [18], and the Norwegian kindergartens celebrate this day as the birthday of the United Nations. Being and becoming a good friend, appreciating our diversity and differences and helping and caring for each other are the sustainability values that most often are highlighted as part of this tradition. Preparing and organizing an art gallery exhibition is a common way of showing solidarity with children of the world where Norwegian children are supported in the role of helping children in need, most often outside of the Norwegian borders. This is in line with the United Nations [15] work on global solidarity (point 39) and solidarity particularly with the poorest and with the people in vulnerable situations where also children are encouraged to explore their infinite activism capacities for a better world and hence become critical agents of change (point 51). In the next paragraph, we will present an example from Crisostomo's Norwegian kindergarten practices where a professional experience while celebrating the United Nations Day together with the parents of the children led to sustainability changes in the kindergarten. Following critical posthuman theories [6] (p. 33), where knowledge productions is always multiple and collective, and hence always re-created between us and multiple human and non-human others, we will not distinguish between Crisostomo and Reinertsen in our writing, but instead write the whole example from a we-position.

Solidarity with children of the world has been on our agenda through the last month and our art gallery exhibition was organized as the highlight of this work where the parents were invited to celebrate the United Nations Day [17] together with us. The children had made many art pieces for the exhibition and the parents were invited to buy these art pieces. The money we gathered on this day would thereafter be sent to an aid organization helping children in need. During the exhibition, something happened, something that changed us and still does. While standing in the middle of the room, listening to the sounds of movement and different tones, a mother came towards us, pointing at one of the art pieces on the wall and asked: "*Is it possible to bring the rest of the money later . . . in, for example, two weeks?*" She was pointing at one of the art pieces her child had made. In her hand she had some Norwegian coins but the sum she had brought did not match the price we had set for the piece. She paid the full price within the two weeks, but this experience made us change how we organized the forthcoming art gallery exhibitions and the celebration of the United Nations Day [17]. In the continuing year, we let the parents decide for themselves how much they wanted to give, regardless of how many art pieces their children had made, and how many of them they decided to buy. In the year after, we decided to celebrate the United Nations Day without a fundraising campaign as part of our celebration. Solidarity with children of the world were still an important part of our practice the month before the United Nations Day [17] but we changed the focus to how we all are equally important citizens of planet earth and how we could take (better) care of ourselves, our friends and our friends to come. Even though this happened many years ago and resulted in changed practices, there is still something here affecting us, calling up on us, forcing us to think. Following Braidotti [6] (p. 53) and critical posthuman theories, this may be elaborated as an neo-materialist ethics of affirmation where actualization of the missing people's knowledge is the breeding ground for possible futures. The ethical entrance here is a forward-looking call to "*staying with the trouble*" as Haraway [19] (p. 1) elaborates, where affirmative ethics is located within affective webs of ongoing connecting points that bind us together and open up new possibilities for a sustainable future. Not to distinguish between mistakes done in the past and potential sustainability solutions for the future, but as processes of

subjectivation while learning to be "truly present" intertwined in a myriad of unfinished configurations of places, times, matters and meanings [19] (p. 1). The "junk" material (as MacLure [20] (p. 180) has elaborated), as these undefined forces that are (still) calling up on us may be described as, may hence contain a hidden potential, perhaps like a treasure chest. Creating intensities but leaving it up to us to take the next step forward.

When in our example we worked on sustainability and solidarity with children of the world, the children in our kindergarten operated as agents of change by planning, preparing and taking part in our fundraising campaign organized as an art gallery exhibition. The mother supported her child in the role of the change agent by participating at the art gallery exhibition and buying one of the art pieces her child had contributed with. We as a kindergarten implemented sustainability into our kindergarten practices, taught children about solidarity and how to help each other, as well as take care of oneself. The children participated with a high level of enthusiasm, the support from the parents was good and we did not get the impression that the mother felt forced to spend money on our fundraising campaign for global solidarity. Even though we implemented sustainability into our kindergarten practices and changed our practices according to our professional judgement, the feeling of something missing remains strong. However, following Braidotti [6] (p. 53) and critical posthuman theories, it is within these feelings of something missing that new possibilities may emerge. Safeguarding a sustainable future by clearing away trouble that looms in the future sounds tempting and urgent, and these feelings of something missing may not help us to solve the huge changing-direction-tasks we have in front of us. However, perhaps it is precisely here that (temporary) solutions still may be found? If we still hesitate, considering the time spent since 1987 and the sustainability report "Our Common Future" [14], can we still afford not to explore potential possibilities this space may offer us?

3. From Agent of Change to Becoming-Child

In line with the United Nations' [15] encouragement to empower children (point 23) and provide them with a nurturing learning environment, acquiring knowledge and skills and hence realizing their rights, capabilities and opportunities to fully participate in the society (point 25), we can find two common ways of defining the field of early childhood education for sustainability. The first one defines education as being *about* the environment (emphasizing scientific knowledge dissemination and/or explorations), education *in* the environment (emphasizing direct experiences in nature) and education *for* the environment (emphasizing active participation, problem solving and/or taking social just and sustainable choices). The second common way to define early childhood education for sustainability is to define education while including and/or overlapping the three sustainability dimensions: the *environmental* dimension (involving protection of ecosystems and their biological diversity), the *social* dimension (involving justice, equality and democratic approaches) and the *economic* dimension (involving financial approach to resources where economic development affects human and/or the environment in a positive way) [21] (p. 979). The ecological dimension has had the greatest prevalence, the economic dimension has been least explored [22] (p. 3), while the social dimension has not yet received the attention needed [23] (p.1).

The notion of the child as a change agent for a sustainable future, explained as education for the environment, including one or more of the sustainability dimensions, preferably seeking to make sense of conflicts as opportunities rather than consensus [24] (p. 388), has been strongly emphasized within the field. A debate that has been both defined as urgent as children are competent and capable of engaging with complex environmental and social issues [25,26]; and criticized as being too anthropocentric in its approach, marginalizing the environment as a passive background for human agency to work on and/or repair [9,27,28].

In this article, we seek to take part in this discussion by departing from Deleuze and Guattarian [2] (pp. 340–342) notion of becoming-child, theorized as the kindergarten teacher as an agency mobiliser for sustainability. Becoming-child hence not as in the

becoming of the child (from childhood to adulthood), but paradoxically being the becoming of the teacher. Placing our article within critical posthuman theories [6] (pp. 33–34), we explore a posthuman subject-position within a natureculture continuum where a fractured *I* [29] (p. 255) is not restricted to bound individuals and/or a transcendental consciousness, but more as processes of transversality that crosses and displays binaries, producing processes of subjectivity. Every expression is still autonomous [2] (p. 369) situated in time and space [30] (p. 590), passing between past and future, human and non-human others while producing blocks of childhood [2] (p. 340).

The Deleuze and Guattarian [2] (p. 15) figure of the child is a figure of resistance to dominant structures and value systems. Not because they take the role of an opponent but because they are not yet fully striated by the rules of grammar that order and subjugate the world. A position open for multiple semiotic connections and possibilities that do not obey the laws of conventional language, and the bifurcating conditions representational thinking brings along (bifurcating the world into signifiers and signified, nature and culture, words and worlds) [20] (p. 173). Even though the child grows up and becomes more adept and embroiled in the "order words" of conventional language, the resistance does not disappear but persists instead as affective blocks of becoming: "becoming-child". A virtual field of possibilities that may befall and/or carry us off to new places, not restricted by age, the child we once were and/or the child that we remember [2] (pp. 242–243).

When we urge to depart from the concept of becoming-child [2] (pp. 340–342) in the field of early childhood education for sustainability, it is the possibilities that the concept of the child [2] (p. 15) may bring forward towards new thoughts and new sustainable kindergarten practices we are interested in (as also elaborated previously in [9,10]). The COVID-19 pandemic has showed us that major upheavals may occur quickly and in unforeseen ways, where a virus not perceivable by the naked eye has changed the world as we know it. We have been forced to take part in changes the pandemic has brought along where some of the changes may have surprised us positively, while others have created wounds, not necessarily repairable. Kindergarten teachers have had to turn their plans upside down with short notice, preparing themselves for the unknown, caring for the children while at the same time feeling the insidious, uncertain presence of the virus, ready for attack when least expected. It is obviously not just the kindergarten teachers and the children who have been affected by the pandemic. The pandemic has affected us all, both locally and globally, however still not evenly, and in some cases even in horrifying ways, difficult and/or impossible to fully take in. "*We were not prepared . . . . not prepared, not . . .* ". The words from the leader of the Norwegian COVID-19 evaluation commission (given the task to evaluate the Norwegian government's national handling of the corona pandemic) [31], are repeating themselves while producing incorporeal transformations in our body [2] (p. 125–126), discomfort and something indescribable. " *. . . we need new plans for better taking care of the vulnerable children and young people in future crises to come*" [32] (pp. 27–28).

Language is primary a tool of power, Deleuze and Guattari state [2] (pp. 88–89), "made not to be believed but to be obeyed and compel obedience". Hence, not as in communicating neutral information but to enforce social order by categorizing, organizing, structuring and coding the world. Always going from saying to saying, transmitting what one has heard. In our example where we worked on sustainability and solidarity with children of the world, we as kindergarten teachers (still writing from a we-position), were in this way transmitting "what we had heard" to the children, with expectations that they would repeat what we had said to them.

> *. . . . It is difficult to accept such a result. However, there is still something here, whispering, calling up on us . . . . Going back and forward and back, listening to our voices: "there are children in the world that are not as lucky as we are. Children that no not have enough food to eat and clean water to drink. Children that lack opportunities to attend school and receive (and/or work for getting) an education. Some of them do not*

> *even have a bed to sleep in during the night. We can help those children. By arranging an art gallery exhibition, we can collect money and send the money to them.*

The children in our example were receiving orders, with expectations of obedience in the form of learning and repeating our orders. When they presented our orders back to us as if it were their own voice, we could proudly document good results. *It is harsh to read this. We know that this is an important part of the role of the kindergarten teacher, a responsibility. However, what is at risk while continuing in this line, not stopping?* When the parents either told us what their children had learned through our kindergarten practices and/or repeated our order-words as their own (adult) voice, we felt that we had done a great job.

> *. . . we are looking at the hand, right in front of us, approximately an arm's length from our tummy. The hand is partly open, partly closed, folded like a small basket, protecting while offering the precious content to(wards) us. Our head is moving, as a sound invokes our attention. Listening to the words while following the hand and the finger, following the movement of the sound and the finger, pointing at an art piece on the wall behind us . . . "Is it possible to bring the rest of the money later . . . in for example two weeks?". The hand of a mom, holding, offering while covering, some Norwegian coins as partly payment for one of the art pieces on the wall, an art piece made by her child. She gives us the coins from her hand, thanking us for the opportunity, smile while at the same time, with her hand softly holding the hand of her child, moves like in a dance, dancing steps, towards the art piece on the wall, the art piece she just (partly) paid for. Solidarity with children of the world, solidarity with our children; our children of the world, we have no one to lose, not one to forget. We are looking at the hand of the mom, holding while covering the precious content, the dancing steps, and the softness in the grip, holding the hand of her child . . . . thinking quietly and/but loudly, forcing us to encounter poverty in Norway, where 11.7% of children in Norway (2019) are living under conditions of child poverty [33] and where the pandemic may have exacerbated the situation in years to come. We are thinking about solidarity with children of the world, the wicked problem of sustainability [34], and how we may keep the concept of the child in play . . .*

We were not prepared for the COVID-19 pandemic, and we need to prepare a plan for how to take care of the vulnerable children and young people before the next crisis, more or less surprisingly, emerges [32] (pp. 27–28). Plans that may help us to organize ourselves and our society. However, even with "good plans", there is always something missing, always something escaping our urge to do good. "The multiple *must be made*" Deleuze and Guattari [2] (p. 5) state, however they continue with, "not by always adding a higher dimension, but rather in the simplest of ways, by dint of sobriety, with the number of dimensions one already has available". In the next part of our article, we will continue with the wicked problem of sustainability and education as a way of staying with the trouble [19] (p.1) and opening up a/the complexity of sustainability issues.

4. The Wicked Problem of Sustainability and Education

Sustainability has been on the agenda for decades and the definition on sustainability defined in "Our Common Future" [14] has provided a framework for thinking and discussing sustainability issues in a wide range of fields. However, efforts at national, regional, and organizational levels have demonstrated that implementation is hardly facile. As sustainability is addressing environmental, economic and social issues simultaneously, how to achieve the issues in practice is even more complicated [34] (p. 110). The United Nations [15] are, for example, reporting that billions of citizens in their member-countries are continuing to live in poverty, that the inequalities within and among countries are rising, that gender inequality is still a key challenge, and that global health threats, more frequent and intense natural disasters and humanitarian crises are threatening to reverse much of the development made in recent decades. They are further reporting that natural resource depletion and adverse impacts of environmental degradation (such as desertification, freshwater scarcity and loss of biodiversity), climate change and the increasing of the

global temperature exacerbate the sustainability challenges we are facing. While electric cars, for example, are considered as key in the change from fossil fuels driven cars and towards greener alternatives, Amnesty International [35] is at the same time warning us about human rights violations (including child labor) linked to both the production of the batteries used in the electric cars (mineral extraction (however improved since their 2016-report [36]) and the use of coal and other polluting sources of power) and the negative environmental impact as part of the recycling/disposing of the battery waste from the departed electrical cars. Another example may also be found in digital technologies as a key in achieving the 17 Sustainable Development Goals outlined in the United Nations report, Agenda 2030 [15], where artificial intelligence (AI) may be used to track and diagnose issues in agriculture, health and the environment, as well as to help in creating virtual learning environments and distance learning for children and students who otherwise would be excluded [37]. However, while artificial intelligence (AI) may have a large potential as a key in achieving the United Nations [15] sustainability goals, new and other challenges follow with consequences such as, for example, an increased gender inequality (based on who defines the issues, as well as historical biases in the data base behind the development of the AI-robots) (see, for example [38]). While countries such as Norway have a population with a very high level of digital skills, followed by the highest level of e-waste per person in any of the OECD countries [39], 1.1 billion people today are still lacking access to electricity, and a million more have only sporadic access to electricity and hence are relying on dangerous and unhealthy energy sources such as kerosene lamps and candles that also kill many women and children prematurely and/or unnecessarily [40].

Sustainability and sustainable development have a long history, involving concepts such as resource scarcity, conservationism, environmentalism, or as a business model. A concept containing different levels of complexity and extensive network of stakeholders, characterized by a lack of clarity, uncertainty, and ambiguity, where sustainability solutions within one area not necessarily will be beneficial in another area. A wicked problem where alternative sustainability solutions will emerge continuously as sustainability issues are being explored, but where it is impossible to optimize sustainability solutions as different stakeholders have different goals and challenges, and where there are no definitive endpoints to when sustainability challenges may be declared achieved [34] (pp. 122–123). Qualitative education for all, as already mentioned, is both recognized as an important issue in itself, as well as an important contributor in achieving the United Nations goals for a sustainable future [15]. When kindergarten teachers, as for example in the Norwegian Framework plan for kindergartens contents and tasks [16] (pp. 7–10), are expected to fulfil the task of permeate sustainability into every aspect of the kindergarten's pedagogical practices through the promotion of sustainability values, -attitudes, and -practices, they are at the same time also expected to deal with the above-mentioned contradictions within the concept of sustainability. Sustainability contradictions where hence single "right" answers do not exist, and where the kindergarten teachers are challenged to find appropriate ways to deal with knowledge, (un)certainty, values and norms, ethical dilemmas, political controversies, concerns for the planet and its inhabitants, etc. [41] (p. 2). When this task is channeled into how the kindergarten teachers responsibly can support the child as a critical agent of change, the task is complicated even more. How may we keep the concept of the child in play while staying in the middle of the complexity and contradictions the wicked problem of sustainability brings along? If language is primary a tool of power, made to transmit obedience [2] (pp. 88–89), we will need a tool to challenge our habitual ways of thinking sustainable kindergarten practices. In the next and last part of our article, we will elaborate on a/the pedagogy of the concept [5] (p. 12) as such a tool, helping us to break up and/or disturb dominant structures and value systems created in and through language, while opening up possibilities for agency-mobilizing through thinking on/as a plane of immanence [1] (p. 29).

5. A/the Pedagogy of the Concept

Language is primarily a tool of power where there is "no significance independent of dominant significations, nor is there subjectification independent of an established order of subjection. Both depend on the nature and transmission of order-words in a given social field" [2] (pp. 88–92). However, even though language has the power to code over other semiotic systems, it is still only one sign system among other sign systems. Through the concept of the rhizome, Deleuze and Guattari [2] (pp. 5–7) elaborate on how any point of a rhizome ceaselessly can and must be connected to any other point. There are hence no points or positions in a rhizome (such as those found in for example structures or trees), there are only lines open for multiple connections. In this increasing dimension of multiplicities, necessarily changing in nature while it expands its connections, the concept of *agencement* emerges and conceptualizes. A rhizomatic cable network of bodies, actions, passions, acts and statements, intermingling and reaction to one another while producing incorporeal transformations. Content and expressions are hence impossible to separate but are instead elaborated as variations in and of a/the agencement.

The *conceptual personae* are the rhizomatic thinker, letting something in the world forcing processes of thinking " . . . not of recognition but of a fundamental encounter . . . grasped in a range of affective tones" [29] (p. 183). A connectable collective, a nodal point, where the "thought's aptitude for finding itself and spreading across a plane" passing through the body at several places [5] (p. 64).

> *We are looking at the (few) remaining art pieces on the walls, not bought by parents or grandparents during our (non-mandatory) art gallery exhibition as/while celebrating the United Nations Day [17]. We are looking at the hand of the mom, holding while covering the precious content, the dancing steps, and the softness in the grip, holding the hand of her child. Listening to the movements of different languages, the delicious smells from dishes originating from different parts of the world, brought by the parents for sharing. We are looking at the remaining art pieces on the walls, telling stories of a life. Looking at the children among us, wondering about the parents not there, celebrating together with us as/while showing solidarity with children of the world. Children know when something is too expensive for their parents to attend at. Not necessarily knowing about economy and the value of a coin, but absorbing intensities, affecting, affected . . . .*

Philosophical concepts are fragmentary wholes, resonating with one another and overlapping through zones of neighborhoods. It is this overlapping that creates an internal consistency of the concept while becoming a center of intensity [5] (pp. 19–20). Every concept is hence an intensive feature, a center of vibrations, critical, simultaneously performative and methodological [42] (p. 146).

The philosophy that creates the concepts are, on the other hand, "an unlimited One-All" that includes all the concepts on one and the same plane; the plane of immanence. While concepts are events, the plane of immanence is the absolute horizon of the event, independent of any observer. While concepts pave, occupy, or populate the plane bit by bit, the plane itself is the "indivisible milieu" in which concepts are distributed without breaking up its continuity or integrity. The plane secures conceptual linkages with ever increasing connections, and the concepts secure the populating on the plane on an always renewed and variable curve. *The plane of immanence is the image of thought*, "the image thought gives itself of what it means to think, to make use of thought, to find one's bearings in thought" [5] (pp. 35–37).

A/the pedagogy of the concept is to "analyze the conditions of creation as factors of always singular moments" [5] (p. 12) where thinking as process beyond recognition forces us to pose a problem. This involves processes of "fixing-into-being" [1] (p. 29) "that which does not yet exist" as a way to "engender "thinking" in thought" [29] (pp. 193).

> *The child knowns what adults may have forgotten* [20] (p. 179).
>
> *Becoming-child paradoxical being the becoming of the teacher*.

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Dancing as Moments of Belonging: A Phenomenological Study Exploring Dancing as a Relevant Activity for Social and Cultural Sustainability in Early Childhood Education

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Abstract: Individuals' capacities to contribute to more sustainable living are deeply influenced by their early life experiences. Hence, there is a need to discover which experiences are relevant to young children's contemporary and future contributions to more sustainable living. Perceiving children as aesthetically oriented to the world and their sense of belonging as a core experience for social and cultural sustainability, and using the example of dancing, we investigate how such a sense of belonging can be supported through aesthetic first-person experiences. This article is therefore structured around the following research question: How can adults' experiences of themselves, others and their sense of belonging—when dancing—inform explorations of ways to foster embodied and aesthetic belonging for social and cultural sustainability in early childhood education (ECE)? Drawing on a phenomenological study, we analyse interviews with four dancers, who differ in age, gender and dance genre. Our analysis reveals their experiences when dancing as being in a meditative state, having a sense of freedom and feeling body and mind as one, described as an overall "different", resilient way of being and belonging in a social context. Our findings indicate that facilitating moments of sensible and bodily awareness can support a non-verbal understanding of oneself and others, as well as arguments for promoting aesthetic experiences while dancing as relevant to sustainable practices in ECE.

Keywords: social and cultural sustainability; belonging; dance; aesthetic first-person experiences

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1. Introduction

Individuals' capacities to contribute to more sustainable living are deeply influenced by their early life experiences. A central context for early experiences is early childhood education (ECE), and strong voices argue for the importance of education for sustainability, even for young children [1–3]. Despite these strong voices, there is still a need to discuss what experiences are relevant to young children's contemporary and future contributions to more sustainable living [4]. We aim to participate in this discussion by investigating how dance can form relevant experiences for young children's contemporary and future contribution to more sustainable living.

Our approach to sustainable development is enlarged from environmentalism to include human, social, cultural and economic perspectives, as well as political perspectives or "good governance" [4–6]. In this article, we approach social and cultural sustainability in ECE. Our lens, which focuses on social and cultural sustainability, takes its departure from the perspectives of Boldermoe and Ødegaard [7], who point to social and cultural sustainability as a development that ensures safety, social rights and good living conditions for all, in line with Siraj-Blatchford, Smith and Samuelsson's [8] outline of social and cultural sustainability. McKenzie [9] views such sustainability as "a life-promoting state within communities, and a process within communities that can achieve this condition" [9]

(p. 12). Manion and Adey [10] and Grindheim et al. [5] perceive it in the ECE context as creating surroundings that include and stimulate positive interactions, such as promoting *a sense of community* and *a feeling of belonging* to the community where children live, to ensure their safety and attachment to the local area. Thereby, experiences of belonging to a culturally situated local area and to a peer community [11] are viewed as relevant for sustainable education in ECE. Children's life in ECE, where they are physically and socially separated from the rest of society, creates both age and spatial segregation [12], which can limit their sense of belonging and entanglement to their local culture and nature. Thereby, participation, participatory decision-making and agency are important aspects of social and cultural sustainability [13]. We perceive the sense of belonging as a core experience to establish resilience and empowerment and thereby children's contemporary and future contributions to more sustainable living.

The sense of belonging requires a way to perform belonging, someone to belong to and a place to belong to. The place where children belong, the focus of this article, is ECE in the Scandinavian context, which has traditionally emphasised a holistic approach to children's development through play and closeness to nature [14]. These traditions are challenged by an international trend where education is more often presented in a uniform and universal way to solve contemporary problems through early intervention [15] (p. 1) This can be observed in the constant pressure to start teaching academic skills at a progressively younger age in Russia and in the West [16] (p. 358). Such pressure triggers worries about multiple and bodily ways toward sustainable education and ways to belong in ECE. Viewing humans and especially young children as bodily and aesthetically oriented to the world [17], and considering the aesthetic dimension as a fundamental aspect of children's way of being in the world, body movements and dance appear as interesting ways to perform belonging. Unfortunately, limited research has investigated children's bodily and aesthetic orientation in ECE, and we aim at contributing to fill this research gap. Before undertaking a research project that investigates children's bodily and aesthetic orientation to the world—perceived as ways to foster cultural and social sustainable education and ways to belong—we examine how and why such a project might be relevant. We therefore use a phenomenological lens to investigate experiences when engaging in dance from the perspective of adults who can verbalise their experiences. We structure this article around the following research question: How can adults' experiences of themselves, others and their sense of belonging—when dancing—inform explorations of ways to foster embodied and aesthetic belonging for social and cultural sustainability in ECE?

Through a phenomenologically inspired lens [18], we understand dancing as an aesthetic first-person experience [19,20] and a symbolic non-verbal way to build resilience, emphasising the whole person's belonging in context [21]. Drawing on interviews [22] with four people who differ in age, gender and dance genre, we investigate their experiences while dancing. Our study brings to the surface their experiences as being in a meditative state, having a sense of freedom and a sense of body and mind as one, which affect their notions of themselves, others and their sense of belonging. These moments of belonging emerge as providing space for diversity, and new ways of understanding themselves and others. Additionally, we depict structures that are inherent in these states and suggest how such insights can inform how to perform belonging, perceived as social and cultural sustainability in ECE practices. We put forward these experiences as forming a relevant base for further explorations of how to meet and celebrate the kinaesthetic and aesthetic dimensions of young children's bodily, social and cultural formation.

2. Social and Cultural Sustainability, Dance and ECE

Children contribute to their own and others' social and cultural formation, through interpersonal interactions in local communities, as well as participation in the global sphere via travel, migration, television, the Internet and social media [23]. Lifestyles full of rapid changes that require flexibility, in terms of where to live, whom to interact with and how to take part in both private and public spheres, pose challenges to children's sense of

belonging to a community, to a place and together with other people. Building resilience through self-understanding, self-expression and compassion can support individuals' understanding of their places and effects on the world [21] despite these rapid changes, thereby promoting social and cultural sustainability. Østern and Øyen [24] consider how dancers with different abilities can experience transformative processes that construct both belonging and exclusion. Their experiences go beyond the artistic performance and facilitate an understanding of "the other" as different but important participants.

Emphasising experiences when dancing and young children as bodily and aesthetically oriented to the world is relevant to education, which seems to focus on measurable individual achievements [25,26], thereby being in danger of overlooking dimensions of children's dynamic and multi-faceted meaning making. This has been argued as contributing to (if not being sustained by) a hierarchical view of mind over body. Alexander [26] contends that a hierarchical view of mind over body can lead to an education where teachers might risk overlooking the embodied life, thus doing injustice to children as bodily and aesthetically oriented to the world. We postulate that a (more) just educational setting can be established when all aspects of being human and humans' entanglement with others, nature and culture are taken seriously. Alexander [26] emphasises that the somatic characteristic of dance (here, through kinaesthetic sensations) offers possibilities for an alternative approach where the dancer can let go of the means and the ends by focusing on attentiveness and the here and now. Aesthetic subjects, such as singing, music, painting, rhyme, verse, play and dance, have a long tradition in ECE. In the romantic pedagogical movement starting with Rousseau, Pestalozzi and Froebel, aesthetics has been found to be just as important as logic and ethics as a foundation for learning [27]. This traditional approach to ECE represents a way to embrace children's dynamic and multi-faceted meaning making, which is challenged in contemporary discussions about what knowledge and content should be emphasised in ECE.

When art is used in the educational field (also in ECE), it is often "linked to the interests of the arts institution: training, artist support, audience building, providing high quality experiences to audiences, recruiting students etc." [28] (p. 5), and connected to dominant discourses maintaining "constricted notions of both art and education" [28] (p. 5). First, these discourses can lead to a negative self-image of both practitioners and children through an emphasis on whether both practitioners and children "succeed", thereby ending up validating or "measuring" whether the children have acquired the appropriate set of skills [26,29,30]. Thereby, there is a risk of falling back into a body/mind dualistic approach to the human being [26]. Second, as dance may hold certain expectations to skills, Anttila et al. [29] consider how dance can lead to a larger gap between differences in a children's group, rather than a celebration of differences. In contrast to these dominant discourses, we place our study in an emerging discourse where art is put forward as picking up on matters of resilience [21], creativity, curiosity, exploration and change that are close to sustainable principles, since art might form creative responses to the unsustainable challenges of our time [31]. By doing so, we aim to contribute to fulfilling Rasmussen's request for informed discourses, which (among other things) "underlines that making art or training for mastery in a discipline is a learning process beyond learning the artistic skill" [28] (p. 13). We find support from Anttila et al. [26], who postulate how dancing has educational potential beyond learning dance moves, which can create transformational and social change through performing and celebrating differences.

Transformational and social changes call for the involvement of persons. Thereby, traditionally student-centric practices in the Nordic countries can be viewed in line with this emerging discourse. Rasmussen argues that there is a need for "a discursive power that breaks with the myth that it is European artistic and elitist genius that represents the creativity of the people who [are] taken up with industrial labor" [28] (p. 13). In line with studies promoting dancing as a cultural practice that is inclusive of belonging [32,33] and the sense of community [33,34], as well as identity development within and across minority groups or cultures [32,33] and age groups [33,34], we view dancing as offering potential

for celebrating differences and disrupting existing and dominant discourses. Thereby, we regard dancing as providing possibilities to embrace a variety of people and ways to belong and to embrace social and cultural sustainability.

We aim at overcoming the body/mind dualistic approach and the emphasis on measuring beforehand defined competencies versus the focus on children as bodily beings in their situated world, by proposing aesthetic subjects in ECE as more than serving the established cultural heritage and the expression of art. We investigate how embodied exploration as an aesthetic first-person experience in dancing can offer more than knowledge of cultural heritage, rhythms and body motions. We examine these experiences and discuss how an awareness of exploration through an aesthetic first-person experience can be of interest when aiming at constituting future research projects that investigate how children can be involved in activities that facilitate moments of belonging and thereby social and cultural sustainability.

3. Dancing as Embodied Aesthetic First-Person Experience, a Way to Perform Belonging and Social and Cultural Formation

According to Bond [35], dancing is often connected to happiness and freedom, although dance can also be traced to abuses of power and control, greed, hatred and delusion. Dancing has been forced on humans and non-humans, used as punishment, and humans have been punished for dancing. We build on Sheets-Johnstone's [18] and Farleigh's [36] descriptions of dancing as a phenomenon. The structures inherent in dancing as a phenomenon therefore become relevant to how the dancers experience themselves, others and moments of belonging when dancing. Sheets-Johnstone's and Farleigh's phenomenological descriptions of and perspectives on dancing turn the attention to how dance can be described differently in relation to different people's experiences with dancing. Dancing is therefore perceived as a lived experience, from which additional perspectives and understandings are gained than from a cognitive perspective, as dancing is understood as a non-verbal/animate way of knowing [18]. This way of knowing is of specific relevance to young children's education since they have limited verbal competence to express their knowing [37].

In its roots, the phenomenon of dancing is understood as comprising the moments when the whole being is dancing and the dance is being created, performed and one with the dancer [18,36]. These moments can occur in both guided and unguided dance, where the dancer moves effortlessly, is fully present in the movement and can feel existential freedom, by moving "freely, spontaneously, or in total accord with the willing" [36] (p. 19). Sheets-Johnstone [18], Alexander [26] and Fraleigh [36] emphasise how kinaesthesia (movement) is the root of dancing. Fraleigh [36] claims that the aesthetic in the kinaesthetic can come to realisation through dancing and that when the aesthetic is realised, the experience when dancing gains value. In line with Sheets-Johnstone's and Fraleigh's arguments, we propose that dancing involves more than specific movements and motor skills, and we understand dancing as a way to create relations to the dancer's body movements, being deeply engaged with the movements' own form and dynamic in their communicative and aesthetic aspects.

Stelter [19] describes the aesthetic aspects as constituting a first-person experience; a body-sensible and embodied perspective; an immediate, sensible experience and orientation; a pre-reflective and implicit access to knowledge and first-person expression; and an approach that brings out personal meanings. Thereby, an aesthetic first-person experience is viewed as a basis for personal meaning making and "a source of the individual's deeper understanding of his/her interplay with a specific context and environment" [19] (p. 45). An aesthetic first-person experience is understood as a sensible way of being in contact with and being in the world The moment of interest is when dance occurs as something more than doing motor-skill exercises, and the aim is to extract the aesthetic first-person experience from this. We aim to gain insight into aesthetic bodily ways to belong in ECE, a way of belonging that is of core value for young children who still first and foremost experience themselves, others and places to belong through their moving bodies [14].

Therefore, it is the root of dancing as an aesthetic first-person experience moment from which we seek to learn.

Stelter [19] postulates that an aesthetic orientation to the world can create meaningful communities of practice, as it is through understanding one another's "thoughts, reflections, values, motives and aims [that] we [are] able to build up well-functioning learning and working communities" [19] (p. 45). We regard a meaningful community of practice as one where the persons involved belong. Therefore, based on our aim to take children's primary ways of belonging and the whole human being seriously, we investigate aesthetic orientations in dancing and how a sense of belonging can be experienced if the place to belong to (community of practice/dance) is meaningful for the persons involved. By mapping out different aesthetic first-person experiences when dancing, we investigate whether we could find common elements of dancing—despite differences in genre, age, gender and experience while dancing—that would influence people's experiences of themselves, others and their sense of belonging in ECE.

In the context of social and cultural sustainability, dance is perceived as a bearer of culture [38], which is of interest. Leaning on Ødegaard and Krüger's [39] perspective, dancing is thereby viewed as an activity where the situated cultural conditions are explored and transformed by the involved persons' body movements in their aesthetic first-person experiences. It forms a personal, relational and contextual experience of being in the world and in an ECE institution, which can transform the persons involved, the relations among people and their sense of belonging to their given culture. The transformation that emerges from the tension between the established educational culture and the persons involved—which is embedded in our way of understanding cultural formation [40]—may provide the experience of putting forward something new and different. In the context of our study, these comprise new or unique ways of belonging, thereby promoting social and cultural sustainability.

4. Methods and Materials

4.1. Method

We investigate how aesthetic first-person experiences affect individuals' experiences of themselves, others and their sense of belonging, leaning on a qualitative phenomenological approach [18,41]. Phenomenology is described as "a philosophy that is concerned with the question of how individuals make sense of the world around them and how in particular the philosopher should bracket out preconceptions in his or her grasp of the world" [42] (p. 25). To describe and define how the dancers make sense of the world around them, we build on two methodological levels inspired by Moustakas [41], Giorgi [43] and Fraleigh [44]. At the first level, we create a first-person voice for the dancer and thereby an understanding of the subjective experiences that can occur when dancing. At the second level, we draw closer to a hermeneutic approach as we follow the content of these subjective experiences and search for their essence and shared meaning. Thereby, we aim to gain insights into the states that occur in dancing as aesthetic first-person experiences and which structures are inherent in these states. Consequently, we aim to understand how dancing—as a phenomenon and a way for the whole human being to take part in a community—can offer experiences of oneself, others and one's sense of belonging.

4.2. Materials

The materials for analysis are outlined from qualitative, semi-structured and one-on-one interviews [45,46]. Our aim is to uncover subjective experiences in dancing through first-person experiences, by having in-depth conversations. We also seek to capture a broad understanding of the essence of the phenomenon of dancing by including interviewees of different ages, with varying levels of experience and expertise in dancing, as well as experience from different genres of dancing. Our inquiry's purpose is to find a shared meaning in the experience of dancing, not depending on required skills in dance.

When choosing the informants, five aspects were considered. First, building on the notion of dance as happening when the dancer is fully present in the movement [18], it became important to choose informants with experiences in dancing where they had reached this point. Since we aimed to find out what would happen in the moments of flow/presence (aesthetic first-person experience) in the dance, we focused on the moment when the dance occurred [18]. This does not depend on the dancer's skill but on the defining moment in dancing. It is a matter of whether the difficulty matches the skill/presence, which means that moving freely and spontaneously to Elvis Presley's music is just as much acknowledged as a ballerina's moment of dancing when doing pirouettes on stage. Since dance in its root (often) has a non-verbal character, where the dancers work with their emotions using their bodies on a pre-verbal/pre-reflective level, it can be difficult to express experiences when dancing. Therefore, for the second aspect of choosing informants, it seemed appropriate to interview dancers who had experiences and awareness of their experiences in dancing and were able to express these verbally. Third, it was important to not only include experts (professional dancers) as their manner of speaking might be coloured by the jargon of the field. The selection of informants was therefore based on which experience they had with dancing, as follows: a professional contemporary dancer (M60), a contemporary dancer under training (W27), a hobby dancer and Zumba instructor (W46) and a hobby dancer (G15). The fourth aspect to consider was whether various dance genres would offer different or similar experiences, which could show (if any) a shared meaning in the activity of dancing in general. Although this might be counter to the disregard for the skill level, we found it interesting to investigate different genres of dancing, as some genres are traditionally known to be more improvisational and "free" (such as contemporary dance), and others are more dependent on a particular set of skills (such as ballet). By doing so, we aimed to limit potential biases based on the jargon in one specific dance genre. The informants were therefore selected based on their experiences with different dance genres. For the fifth aspect, the informants were chosen based on their age and gender. The four in-depth interviews were conducted with a female contemporary dancer (W27), a female hip-hop dancer (G15), a male contemporary dancer (M60) and a female Zumba dancer (W46), as presented in Table 1.

Table 1. The criteria for being interviewed and the interviewees.

Criteria	Interviewee
First-person experience with the phenomenon	All
Enough experience to talk about the phenomenon	All
Different types of expertise	The interviewees' expertise ranges from being a "hobby dancer" to having been a professional dancer for 35 years.
Different dance genres	Hip hop, zumba, contemporary, modern, dance theatre and contact improvisation
Different ages and genders	G15, W27, W46, M60

The interviews with G15, W27 and M60 were recorded. W46 did not feel comfortable with being recorded, so it was agreed that the interviewer would take notes. The notes were confirmed by asking questions, such as "I have noted that you experience . . . . Is that right?" The summaries of the detected themes were confirmed by direct questions, such as "It seems that you are saying that . . . , and . . . are important aspects of your experience with dancing. Is that correct?" The interviews lasted for approximately 1 h each, and some parts were deleted on the interviewees' request. The transcribed interviews that formed our material for analysis totalled 70 pages (Times New Roman, size: 12 points, line spacing: 1.5).

4.3. Analysis

Our analysis was inspired by Giorgi's [47] descriptive phenomenological analysis strategy using five steps. In the first step, an overview of each interview was prepared separately, which already gradually happened during the interview conversations. Second, each interview was read through and examined, and the meaning units from each interview were detected. Third, still reviewing the interviews separately, the meaning units were reformulated into themes that seemed to match the informants' descriptions/views, such as a sense of freedom, a meditative state and a sense of body and mind as one.

In the fourth step, the themes that emerged were examined in relation to the aim of the study and the research question. Further on, the themes were highlighted in different boxes drawn on a page. Each box presented the themes that seemed important to the interviewee and also answered the research question. In the fifth step, lines were drawn between the different informants' boxes, and the themes were connected to each other. The themes that were highlighted and common for the interviewees were then examined more closely. The three themes—a meditative state, a sense of freedom and a sense of body and mind as one—containing overlapping structures, were drawn out as crucial in all informants' experiences with dancing.

Finally, the themes and the structures within the experiences of these themes were approached through the interviewees' descriptions of their experiences in conjunction with theories about aesthetic first-person experiences. Subsequently, the themes and the structures within the experiences were investigated, considering the sense of belonging as bodily cultural formation towards increased social sustainability.

4.4. Ethical Considerations and Limitations of the Study

The data were generated in line with the ethical guidelines of Aarhus University [48] and the Danish Council on Ethics [49]. Informed consent was given electronically, as well as orally before starting each interview. In the case of G15, her parents gave informed consent by e-mail. The interviewees (as well as the parents of G15) were each offered the option to read through the transcription of the interviews. All interviewees were informed about their right to withdraw from the interview at any time or refrain from answering any question. Subsequently, the informants (and the parents of G15) signed a consent form approving further publishing of the information from the interviews.

The researcher who conducted the interviews was a dancer herself, and familiar with the dance milieu in both Norway and in Denmark. The informants were chosen based on her knowledge of them. Three of the participants were Danish, and one was Norwegian. The familiarity between the interviewer and the interviewers established trust, and the interviewer was familiar with the terms regarding dance activities. The researcher's knowledge about the involved dancers' passion for dance provided access to people who had aesthetic first-person experience of the phenomenon of dancing. This probably prevented a broader spectrum of experiences in dancing (such as experiences bearing more negative connotations). The small number of participants also limited the materials for analysis. However, it gave room for more in-depth interview conversations and generation of data materials.

The selection criteria can be questioned. First and foremost, children's aesthetic first-person experiences in ECE are missing in our materials. Insights into the phenomenon of dancing would be deeper and more in line with our overall aim to foster multiple ways to belong as social and cultural sustainability for young children in ECE if their experiences were present in the materials. Additionally, by examining experiences limited to verbal utterances among adult dancers (in privileged contexts), we are in danger of celebrating the already dominant discourse and unsustainable ways of living. Despite these concerns and limitations, we find that our study provides important arguments for further research where the voices of children and teachers embedded in ECE practices are present, as well as an overall argument for celebrating the kinaesthetic and aesthetic dimensions of young children's bodily, social and cultural formation.

5. Results: Moments of Belonging as Aesthetic First-Person Experience in Dance and Other/Different Ways of Being in the World

The findings are presented in three parts. Section 5.1: the states as first-person experiences while dancing; Section 5.2: the structures inherent in these aesthetic first-person experiences and Section 5.3: how these first-person experiences also give space for perceiving other people as different and facilitate moments of belonging. All the direct quotes from the interviews are in italics.

5.1. Aesthetic First-Person Experiences while Dancing

Our analysis reveals that the interviewed dancers experience themselves, through first-person experiences of a meditative state (Section 5.1.1), a sense of freedom (Section 5.1.2) and a sense of body and mind as one (Section 5.1.3).

5.1.1. A Meditative State

All four dancers describe their experience in dancing with words such as "letting go of their thoughts" while in a meditative or Zen state, which is a form of meditation practice. M60 explains his experiences when dancing:

> *When I once tried to describe this to someone many years ago, the person said, 'What you just described, that is Zen Buddhism. And I was like, 'Oh, that makes sense.' It is a state where you are allowed to let go of the thoughts and just be present in the dance.*

G15 refers to letting go of thoughts and everyday hustle. W46 puts it this way:

> *It is like a meditation class . . . . It is the combination of music that goes straight to the heart, and you also have the dance, and these melt together. This makes me happy. . . . when you have the right music and just floats, you don't have to think about [cooking] dinner or anything.*

W27 also describes the experience as "dance/or 'the physical thing' overlaps something *that is not physical . . . . It is not exactly meditative–well, actually, yes, it is; it is kind of Zen-ish*."

Through these utterances, despite their differences in age, sex, occupation and experience with dance, the informants express their views that, when dancing, they (can) experience a shift from everyday life, where a lot is going on in their head (M60), to a state in which they can let go of the everyday hustle (G15), disregard thoughts and a strong will (M60), let go of vainness and judgements towards self and others (M60) and just be in the moment (M60, G15, W27, W46). Being in this state reflects an embodied, immediate, sensible and pre-reflective experience that creates meaning for the persons involved, in line with Stelter's [19] outline of an aesthetic first-person experience.

5.1.2. A Sense of Freedom

The dancers outline their experience of a sense of freedom when dancing, feeling free from chores (W46), schoolwork (G15, G27) and thoughts (G15, W27, W46, M60). Their experiences can also be connected to a more existential freedom, the freedom to express themselves as they want:

> *To me, this is a free space. I really only need to concentrate about one thing, and that is to dance and to express myself in the way that I want to express myself. I do not really have to think about anything else, and that has helped me a lot.* (G15, hip-hop dancer)

W27 (a contemporary dancer) refers to the same sense of freedom of expression in dance:

> *You know, I feel like I speak a language I can understand. Well, I just fell in love; it was just there, the thing about not needing a form for the movement, not using a beat, and just approach the dance through . . . what do you call that . . . a quality, instead of a technique. It is more like 'okay, be a tongue' or 'be yellow' or something like that. You know, 'What is that for you, right?' The freedom this has created, the freedom I got from this has created a base or a fundament for my way of thinking . . . and my way of creating*

> *. . . . I still try; I want to develop this, but I feel incredibly free and inspired when I am not told what to do or told what/who I am or who to be.*

This can be viewed in relation to Fraleigh's [36] description of existential freedom in contemporary/modern dance, which is confirmed by W27 and M60, who perform contemporary dance. They describe the freedom in using contemporary dance as a tool for expression. However, in the present study, we discover that this form of freedom can be found in other forms of dance as well, through being allowed to and able to (W27, G15) express themselves through their bodies, both in guided and unguided dance. The body is put forward as a tool for expression (M60, G15, W27), and the dancers describe a different way of communicating. These utterances reveal that the sense of freedom is not limited to making choices while dancing, which is the case for many improvisatory contemporary dance genres. It involves being allowed to express oneself through an embodied and emotional expression that is not dependent on words. Thereby, the involved persons' experiences of themselves when dancing bring to the surface a sense of freedom that is connected to embodied and emotional expressions, aligned with Stelter's [19] outline of an aesthetic first-person experience. Additionally, this sense of freedom can be interpreted as Fraleigh's description of existential freedom as "moving freely, spontaneously, or in total accord with the willing" and her notion of how to express freedom through embodiment in dancing: "we create it, and experience it aesthetically" [36] (p. 19).

5.1.3. A Sense of Body and Mind as One

Since both the possibilities of letting go of thoughts in a meditative state and being able to express themselves with their bodies as having a sense of freedom occur in the dancers' experiences when dancing, it is interesting to note how M60 explains that it is "*not about letting go of your thoughts completely*" but about the connection between body and mind in dance:

> *You can never really get out of your head; the head is always there; the thoughts are always there; you can never really be released from the head. Which parts of you do not belong to your body? Your ears? Or what about your eyebrows, or the brain? The skull? What about your spine? All is body! Your brain is body! And I think you will get lost/lose track if you think it is about not thinking . . . . You are SUPPOSED to use your sense and your brain, for what it can be used for . . . . For me, it is primarily about using your brain in a different way than when we sit like this (pointing towards us sitting and chatting), to get a different connection.*

Here, a different connection between body and mind is emphasised. This is evident in another informant's (G15) descriptions as well:

> *You get a different understanding of your body and what you are capable of doing with your body than what others who do not dance, perhaps do not know [what] their bodies can do . . . . I get a mindset of believing I can do more things than I think I can do.*

This indicates that experiencing her body in a different way than usual strengthens her self-confidence. M60, who is a dance teacher, says, "*I see this all the time*"; that is, he teaches people to dance, and suddenly, they learn more about their minds as well or realise that they have bodies in a way that they did not have the same awareness of previously—which again seems to strengthen their self-confidence. W27 points to dancing as "*an interplay between something physical and something emotional*". Now, in a period of her life when she cannot dance because of health issues, W46 describes how "*[I] bring the experiences and sensations from dancing with me in other areas of my life*". Thus, although she does not use her body as when dancing, she says, "*[I] use [my] mind to stimulate the experiences in dancing, thereby getting into a similar state that serves me well mentally*". This does not necessarily either prove or refute a body–mind connection but shows that such a connection becomes strong through dancing.

These experiences that strengthen self-confidence create or are created by a different connection between body and mind, representing another way of experiencing oneself that

is in line with Alexander's [26] and Fraleigh's [36] concept of dance as a way to overcome the dualistic approach to mind and body.

5.2. The Structures Inherent in Experiencing a Meditative State, a Sense of Freedom and a Sense of Body and Mind as One

In line with our phenomenological approach, we have searched for the structures inherent in experiencing a meditative state, a sense of freedom and a sense of body and mind as one [18]. The insights into these structures can offer knowledge of how such moments can be facilitated in ECE.

5.2.1. "Different" Experiences of Oneself, Letting Go, Forgetting—And Finding—Oneself

A closer look at the informants' descriptions shows a clear coherence between the structures of getting into the three states and the first-person experiences of being in these states. The aesthetic first-person experiences in dance make the dancers let go in a way that makes them feel happy (W46, G15), but it also appears to affect them at a deeper and more existential level. Therefore, the structure of **letting go** seems to affect the dancers at an existential level. The dancers highlight the fact that through dancing, they can let go of everyday thoughts and concerns. It "*helps you let go, engage fully in a task*" (W27) and "*forget yourself and your wishes and give your ego a break*" (M60). Both G15 and W46 talk about letting go and floating with the music as an important part of the experience. Thereby, we can trace structures, such as being **present in the here and now** ("*forget yourself*"), **flow** ("*let go*") and **shift of focus** ("*give your ego a break*").

Sheets-Johnstone [18] and Fraleigh [36,50] explain that through the presence (which is required) in the dance, dancers must let go of their thoughts and reflections about the dance and of themselves to fully become one with the dance. The dancers in this study talk little about letting go of their thoughts about the movement but describe how they can take a break from thoughts and judgements of themselves and others (M60, W27, G15, W46). This resembles Stelter's [20] description of one of the dimensions of body-anchored learning as the subjects "shift into a state of being in the present moment *without being judgmental* in regard to oneself as subject and in regard to the situation" [20] (p. 114). Stelter [20] further compares this to a meditative state, which can simply be explained as being in the here and now. Hence, the understanding of what happens to the informants when they experience a meditative state is supported by Stelter's theories. M60 takes this point even further:

> *Actually, I have found that it is not as much about forgetting yourself; I think it is the opposite. I cannot say precisely what the opposite word is, but you are coming back to yourself—or a different side of yourself . . . where you are less vain, more present, less judgemental. When this succeeds—because you can also go the other way and get more judgemental, but when this succeeds, you get to turn off some of those . . . all those things that you are in your daily life, which for me is a liberation of . . . the body . . . . You could say, it cleans out the pipe between your thoughts and your body . . . .*

By **letting go** and forgetting himself, M60 describes a transformative potential; he is not just forgetting himself but is coming back to himself, to a different side of himself, wherein he becomes "*less vain, more present, less judgemental*". He also explains that dancers "*can also go the other way and [become] more judgemental*", which shows that the experiences in dancing are not given. From his descriptions, it seems that the dancers themselves play a part in whether they succeed in getting into the states through their ability to *let go*.

The structure of **letting go** and being **present** seems crucial for getting into the states in dancing. The dancers explain that through their deep engagement in dancing, they are exploring the body's possibilities (W27, G15), something inner (W46), how their bodies can give them information (W27, M60) and how they can express themselves (M60, W27, G15). Further on, the experience of realising what they are capable of doing with their bodies offers them new perspectives on life that they bring into their daily life. "*I get a mindset of believing I can do more things than I think I can do*" (G15). These experiences are described as *different*, although from M60's elucidation of how he is coming back to himself/a different

side of himself, it can be understood that the experiences in dancing open up an awareness about something that already exists but is made accessible through a **bodily and sensible engagement and awareness** in dancing.

Bodily and sensible awareness is understood as a **shift in focus** from daily life (M60, G15, W27, W46) to a deeper level of consciousness. This can be understood through M60′s interpretation that "*you are always your body and always learning about your body but that to get into this state in dancing, you have to spend quality time with your body*". W46 explains that this helps her to be more present in her everyday life, even now, when she has an injury, which prevents her from dancing. Consequently, the shift in focus seems to help in attaining a different connection between body and mind that opens possibilities for experiencing both the body and "the inner self" differently. This connection can be understood as supporting the sense of body and mind as one and can open new understandings through the aesthetic experience.

Additionally, structures such as **space and environment**, as well as **trusting yourself and others**, seem crucial for letting go. G15 and W27 find their place in dancing as they walk into a room where they are able to and allowed to express themselves as they want, through their bodies. Hence, the potential of experiencing themselves differently seems to depend on both their own intentionality and the environment around them. This can create a sense of freedom and a body–mind connection or, in M60′s words, "*a liberation of . . . the body . . . . You could say, it cleans out the pipe between your thoughts and your body . . . .*" According to W46 and G15, music helps them let go. From these informants' utterances, we can therefore imagine that music is what helps them get into a meditative state, gives them a sense of freedom and connects body and mind.

5.2.2. Summing Up the Inherent Structures in Experiencing a Meditative State, a Sense of Freedom and a Sense of Body and Mind as One

The states and the structures—involving a meditative state, a sense of freedom and a sense of body and mind as one—are understood as occurring through aesthetic first-person experiences. The different structures identified are (1) letting go, (2) a shift in focus, (3) presence in the here and now, (4) sensible and bodily awareness, (5) trusting oneself and others, (6) flow, and (7) space and environment. These seven structures are interwoven and represent structures of a whole that occur for the dancers in their experiences in dancing. Revealing these structures can help in understanding the pre-reflective and implicit transformative potential of their experiences, which is relevant to building resilience.

5.3. "Different" Experiences of Other People and Moments of Belonging

The transformational understanding of oneself, as outlined above, does not only mean a shift in one's experience of oneself in the world but also involves (1) ways of expression and understanding of others and (2) the sense of belonging to a community.

5.3.1. Body Movements as Expressions and Understanding of Others

The aesthetic first-person experiences in dance are expressed as containing a different possibility for expression and communication. The possibility to extend ways to communicate also influences how someone experiences and connects with other people. W27 describes it this way: "*and then suddenly, we were speaking the same language . . . and then I started to feel at home*". This is considered as a community wherein people understand you when you do not use your words (W27, G15, M60). M60 explains that he "*feels present in the world in a fuller way*"; when he succeeds in getting into the state, "*time changes*", and he senses the world differently:

> *. . . it is like having the headlights on, not in your eyes, but on your skin; I can feel the world around me. I am more present; things are not exactly happening in slow motion, but it is like I can register a lot more.*

Hence, the presence, the feeling of flow and bodily and sensible awareness are not only of meaning for how the dancers understand themselves but also the world around them and their community:

> *It was like human compassion in praxis. You train your empathy, you train your generosity, and your vainness . . . a lot of things are happening (. . .), but when you succeed, this is what you train. You also train your breath, your gaze, but you are training some kind of human compassion. (M60)*

M60 experiences and trains his human compassion when dancing. This reveals that it is not only about being able to express oneself and communicate through dancing but also involves a more existential experience of human compassion and understanding of oneself and others, which has a transformational potential that has to be developed. He and the other dancers experience a state of being in which they can understand and navigate both their own and others' aesthetic, pre-reflective expressions. Consequently, the aesthetic first-person experiences in dancing seems to make people less judgemental and more compassionate towards others. Perceiving dance from a phenomenological perspective containing both the past and the present and having an effect on the future, their experience of human compassion in dancing can mean something for how they encounter others in the future (after dancing).

5.3.2. Moments of Belonging to a Place and to a Community of Practice

W27 points to how the experiences in dancing have affected her understanding of herself in relation to the world. She explains that exercises in dancing can help her to feel grounded—like she has a connection to the floor:

> *Another element in this is this thing about grounding, feeling like you have a connection. This simply happens through exercises, where you just . . . (she breathes and shows a peaceful expression). And when you are peaceful and grounded, not only can you feel the floor; you can breathe, and you believe that you can take space in the room.*

W27 describes this feeling as being one of the side effects of dancing:

> *. . . something that I feel that I get from grounding—from dancing, you know—standing more firmly on the floor . . . . It is not just physical; it is also about believing in you being here, that you are allowed to be here. And this is 100% fundamental for who I have become today, to have a belief that people can like me and that can I like myself. And I am like, 'I can do that!' And I do not know if I [would have] this if I had been somewhere where they spoke another language, which I could not get into . . . . If I had not been dancing, I do not think I would be/feel like I [am]/do now. I would have been too much up here (pointing to her head), and I would not have had this connection, which you just get . . .*

Dancing and "this connection between body and mind" seem crucial for W27's experience of being in the world—"to be allowed to move, explore and to feel like it is all right for me to be here, that people can like me and that I can like myself". She mentions that she does not know if she would have this feeling if she had not been dancing. She "just feels at home" in dancing, and indicates her sense of belonging when dancing. "Feeling at home" is also emphasised by G15, who describes dancing as "a natural [place to] go to". M60 stresses that he is "feeling present in a fuller way", W46 and M60 point to compassion and to trust in oneself and others, and W46 refers to "taking responsibility for oneself and others when dancing". G15 emphasises the value of "being different people with different skills, dancing together", as she knows that she is "good at some things and that others are good at other things, and what is good about this, is that we can learn from one another". Thereby, they point to communication, which aligns with Stelter's [19] outline of a meaningful community, with mutual understanding, where it is good for the persons involved to belong. It is a community where the dancers experience themselves and others as important but different participants.

5.3.3. Summing Up the Different Experiences of Other People and Moments of Belonging

Aesthetic first-person experiences in dancing seem relevant to meaning making and the sense of belonging and being in the world or, more specifically, in a community where it is all right to be, where different people can be accepted and belong, in a community that is created through trust in others and in themselves and their belonging there, which is made possible by letting go of thoughts, judgement and vanity about themselves and others. Through a sensible and bodily awareness, the aesthetic first-person experience in dancing seems to be a connector between body and mind, which opens up a pre-reflective dimension of human consciousness. From an understanding of the human being as aesthetically rooted in the world, this dimension is fundamental and might explain the dancers' sense of feeling at home. This indicates that not only can the body–mind connection grow stronger, but it can also form an experience of bracketing the me–world dualism and the sense of belonging. These moments emerge as room for diversity through communicating and for empathy through new ways of understanding both oneself and others. The transformation that emerges between novel and more established ways of belonging, pointed to as a different way of belonging, can be relevant to young children, who are fundamentally embodied in the world and, thereby, to the ways of facilitating social and cultural sustainability in ECE.

6. Discussion

The outlined aesthetic first-person experiences that also bridge the body–mind dichotomy may explain the overall and grounded knowledge of how to educate young children that can be traced in the history of ECE and the romantic pedagogical movement that highlighted aesthetic subjects in children's education and cultural formation [27]. This tradition is challenged in contemporary education by the urge for previously defined universal competencies, but another approach in contemporary education calls for local and contextual strategies to connect local and global challenges in meaningful situated practices [23]. Located in the latter approach, investigating different ways of belonging by dancing, our analysis—although outlined from adult dancers' experiences—offers arguments for revitalising aesthetic approaches in ECE.

Embedded in a phenomenological approach, the notion of children as fundamentally aesthetically oriented to the world is outlined by several researchers (i.e., [17,37]). The transformative experiences identified by the informants, regarding the understanding of themselves, others and their sense of belonging to the world, occur through the "sense" that children already use to orient themselves to the world. Creating space for fostering this dimension of children's orientation to the world therefore seems crucial to support their inborn ability to understand themselves and others through a pre-reflective dimension. Overlooking this dimension is unjust in the educational setting—that is, overlooking children's fundamental way of orienting themselves to the world. This unjust approach to young children's education might be a problem, not only for the individual child, but also in fostering social and cultural sustainability. People who belong also contribute, and the transformative experiences and knowledge of structures that facilitate such experiences may serve as important drivers when trying to address complex problems of unsustainability, such as the deprivation of belonging because of travelling, studies and flexible labour markets.

The structures inherent in the phenomenon of dancing that have surfaced from our analysis create awareness about how facilitating sensitive embodied moments of belonging in ECE calls for a different approach than promoting aesthetic subjects, such as dance, in a way that supports the existing discourses within arts in education. In particular, promoting aesthetic subjects such as skill training might lead to measuring whether educators and children attain the required skills [28–30]. Our analysis reveals that aesthetic first-person experiences in dancing can occur when humans are fully engaged and present in the moment, without being judgemental towards themselves and others. From our point of view, the structure of letting go and shifting the focus from timescales, the original plan

and goals to just being in the moment can be highlighted for both the teacher and the child, perhaps even more for the teacher, who, after all, has the responsibility and is most often more socialised in the established trap between body and mind. The same holds true for the structure bodily and sensible engagement and awareness, which calls for teachers who are sensible and aware of their bodily communication in their interactions with young children. Additionally, the structure space and environment calls for spaces and places for moving bodies in interaction. Lastly, the structure trusting yourself and others calls for possibilities to practice these aesthetic first-person experiences without being judged, neither by oneself nor others, as a pathway for receiving specific competencies that can be a hinderance to both resilience and celebrations of different people contributing in a community of diverse people in equity [24,29,32–34]. Outlined from the structures and evident from our analysis, the phenomenon of dancing seems to both rely on and foster such structures at individual, social and institutional levels. The structures inherent in the meditative state, the sense of belonging and the sense of body and mind as one seem to be the results of experiencing each state, as well as being in a condition where a person can get into the states. All of these states, leading to an experience of being in one's body in a different way than usual, sensing and feeling with one's body, and being allowed to express oneself in a non-verbal way (in a different way than usual), are interpreted as moments of belonging. We conclude that the bodily and sensible awareness, which the dancers recognise, asserts itself and makes space for a change in focus as reflections of a verbalised character are set aside and a pre-reflective, non-verbal orientation towards oneself and the world is opened.

In line with Rasmussen's [28] call for art in education that focuses on the educated person, our analysis brings to the surface the phenomenon of dancing, not only as an expression of art and culture and bodily excellence (or lack of it), but also as a tool through which the dancer can experience the world in a different way than what is the main focus in society. We therefore call for more moments of open-ended explorative practices in ECE, where there is no external pressure for the child to be or act in a certain way, but a possibility to experience existential freedom and belonging by being a person/body in this world, situated in a community of different people.

Despite finding that our small-scale materials and analysis offer arguments for meeting and celebrating the kinaesthetic and aesthetic dimensions of young children's bodily and cultural formation, built on selected adult's mostly positive experiences while dancing, we ask for more research. There is still a lack of research where children's and the teachers' activities form the unit of study, that explores what kinds of aesthetic experiences are available for children in Scandinavian ECE, how children might experience aesthetic activities and how such activities can be performed in everyday life in ECE. We must also consider that our informants are adults. Children might experience dancing in other ways than adults do. Furthermore, we report positive experiences in dancing, yet dancing is not solely a phenomenon of happiness and freedom. Dance can also represent abuses of power and control, greed, hatred and delusion [35]. There is a need for more research into the kinaesthetic and aesthetic dimensions in ECE and how to bring to the surface and balance multiple ways for children to be entangled with others, nature and culture.

7. Summing Up

Our findings indicate that certain experiences in dancing affect the dancers' understanding of themselves, others and their sense of belonging. These experiences are put forward as different; they let the informants do something or experience something that creates a tension with what they usually do or experience in their daily life. If this is the case for mature persons with fully developed language, we could imagine that it could be far more important for children, whose ways of navigating the world, their relations and themselves are made possible primarily through their aesthetic orientation to the world. Such a view of sustainable education promotes different ways of belonging, expands ways of understanding and practices child-sensitive education for social and cultural sustainabil-

ity. People who belong to a community also belong to a place in a broader sense—that is, to an environment and nature that are both locally and globally entangled.

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CHAPTER 2

In the Best Interests of the Child: From the Century of the Child to the Century of Sustainability

Liv Torunn Grindheim, Jorunn Spord Borgen and Elin Eriksen Ødegaard

Abstract

The 1989 United Nations Convention on the Rights of the Child (UNCRC) established a milestone for the 20th century, which is often referred to as the 'century of the child'. Despite the UNCRC being accepted in most countries, suppression and injustices are still present in many children's lives. To gain more insight into how to come closer to achieving equitable conditions for generations living interconnected lives in their situated local, but globally entangled, nature and cultures, this study investigated how children's rights to protection, to be heard and to play and recreation are promoted, actualised and expended in the wake of the century of the child. We start by presenting significant voices and changes that occurred during the 20th and 21st centuries and point to paradoxes and ambivalences that researchers encounter when aiming to discover what is in the best interests of the child. Research that has enhanced our knowledge on children's protection, participation, play and recreation revealed that children's lives, historical voices and legal rights and changes in global and local societies, nature and research are entangled and offer both new and contradictive knowledge about children and childhood. The uncovered paradoxes and ambivalences call for transformative research designs that are problem-oriented and transdisciplinary, as we as experts, together with citizens and policymakers, seek to make the right choices in the best interests of the child.

Keywords

century of the child – sustainability – UN Convention on the Rights of the Child – transformative research designs

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1 Introduction

The United Nations Convention on the Rights of the Child (UNCRC) states that the best interests of the child should be a primary consideration in all actions concerning children (United Nations, 1989, art. 3). The UNCRC has been accepted by most countries; however, crime, suppression and unjust decisions continue to exist in and impact the lives of many children: all in the name of the child's best interests. Even in the Nordic countries, which are recognised for their child-centred approach to children and families in matters of education, public services, child culture industries and art, children continue to be abused and neglected, and their voices continue to be too easily ignored, both in everyday life affairs as well as in more important life decisions, such as those that have a huge effect on their future.

Attitudes towards children are deeply culturally grounded. Positioning ourselves among researchers who study childhood, children and children's cultural formation and examine these attitudes, requires an awareness of the context within which we operate. We can start by pointing to Ellen Key's influential book *The Century of the Child* (2018) that was published in Sweden in 1900. This book influenced not only Swedish society but also the Nordic and European spirit of interest in children's agency and personhood. The establishment of the BIN-Norden Child Culture Research Network in 1970 and the 1989 UNCRC can both be traced back to Key's influence. The influence of *The Century of the Child*, reified as worries for the children of future generations, is also evident in the world's ecological awakening and the 1987 Brundtland Report (World Commission on Environment and Development [WCED], 1987) that pointed to sustainable development as 'development that meets the needs of the present without compromising the ability for future generations to meet their own needs' (p. 29).

Since the 1980s, studies on childhood, child culture and developmental psychology have begun to establish common themes that have inspired other fields, such as education, philosophy, health and law. For many years, these fields have been less universalised and more contextualised (Borgen & Ødegaard, 2015). Children are understood as individuals who contribute to their own and others' cultural formation through interpersonal interactions in local communities but also through participation in the global sphere via travel, migration, television, the Internet and social media. As such, we see an increasing interest in developing policies based on universal solutions, legislation and efforts (Biesta, 2015). Both approaches attempt to meet the uncertainties of our rapidly changing and internationally interconnected contemporary society, where we must also face the enormous challenges presented by unsustainable

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methods of distributing and managing natural, cultural and human resources. In some parts of our world, children still do not have access to childcare and education, and poverty among children exists in both developed and underdeveloped countries (Eriksen, 2018). Acknowledging these challenges, we are convinced that universal solutions based on research from 'yesterday' cannot adequately address contemporary and future challenges. Despite this, we also know that historical and cultural knowledge must be handed over to the next generation; not doing so would be a disservice to the next generation. Thus, we have a pressing need to understand and accurately depict the current conditions of children's lives, encompassing their play, learning, well-being and cultural formation. This chapter, therefore, is structured around the question: *How are children's rights to protection, participation and recreation promoted, actualised and expended in the wake of the century of the child?* By looking backwards to the century of the child to understand ways of viewing children and childhood, we aim not only to gain insight into how to re-establish what might have been left out of children's lives but also to determine how to come closer to realising equitable conditions for generations living interconnected lives in their situated local, but globally entangled, nature and culture.

We begin by presenting some significant voices and changes from the 20th century, especially those from the Nordic context in which we are embedded, and point to paradoxes and ambivalences researchers encounter when they seek to identify actions and ideas that are in the best interests of the child. We approach our examination through the lens of three central themes. The first considers departure from children's right to protection, the second from children's right to be heard and the third from children's right to play and recreation. We sum up by viewing the paradoxes and ambivalences identified as conditions for transformative research practices that promote sustainability and the involvement of a variety of stakeholders and disciplines.

2 The Century of the Child

Taking a historical route, the perceptions of both women and children have been significantly impacted by the fact that references to a 'human' have traditionally been perceived as references to a grown man. Many voices have suggested opposition to this main discourse on man and instead have emphasised the resources that children have and bring to society. These historical thoughts and actions are manifold, but a common thread is the radical thought of children as humans in their own rights. Ellen Key (1849–1926), a Swedish intellectual, is one of the first strong Scandinavian voices to advocate principles

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concerning the rights of children. In her famous book, which she titles with her designation of the 20th century, *The Century of the Child* (Key, 2018),[1] Key writes about the neglect of children and advocates making children the focal point for political reform and education, promoting child-centred approaches to teaching and learning. Her ideas were embraced and further developed in Germany and the United States and were disseminated back to the Nordic countries in anonymous intertextualities by Elsa Köhler[2] and Charlotte Bühler[3] (Hauglund, Key, & Thorbjørnsen, 2001).

Key was familiar with the philosophies of both Karl Marx and Friedrich Nietzsche and oriented herself politically toward social democracy. She fueled the process of the social inclusion of children and the full membership of boys and girls in the human structure (Hällström, Jansson, & Pironi, 2016). The child-centred focus in Key's writings and the close relation to Rousseau's beliefs are exemplified by what she opined about education:

> To suppress the real personality of the child, and to supplant it with another personality continues to be a pedagogical crime common to those who announce loudly that education should only develop the real individual nature of the child. (Key, 2018, p. 108)

She referred to the 'soul murders in school' (p. 203) and to kindergartens as 'canned education', meaning that kindergartens were like factories where children learned to model others rather than to express themselves. She argued that the Froebel dictum, 'Let us live for the children', must be changed into a more significant phrase, 'Let us allow the children to live' (p. 242). Accordingly, she was very critical of corporal punishment. She wrote that one should never beat a child, because beating seldom makes children realise what error they made; it only awakens feelings of revenge. Furthermore, bodily punishment appeals primarily to the 'beast in man', the beast that one otherwise strives so diligently to obliterate in the child (Ambjörnsson, 2014). Even though her visions were close to those of Rousseau (and argued against some of Fröbel's didactics on modelling patterns), philosophical ideas from the 17th and 18th centuries, what she proclaimed was radical and not set into the juridical system until much later.

We trace the heritage of the establishment of children's rights to Key. One such effort to establish children's rights was the Norwegian parliament's passage of the Castbergian Child Laws[4] in 1915, which granted children born outside of marriage the rights to inheritances and to bear their fathers' surnames. These laws also ensured financial support for unmarried mothers by expanding the maintenance obligation. Thus, these rights were strengthened through legal protection (Andersland, 2015).

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The 1924 Geneva Declaration of the Rights of the Child (League of Nations, 1924), recommended by the League of Nations, is another early document that specifically addressed children's rights. Then in 1948, the UN General Assembly approved the Universal Declaration of Human Rights, a revised and expanded version of the Geneva Declaration that states that all humans should be protected, as outlined in article 1: 'All human beings are born free and equal in dignity and rights'. This document formed the basis of the 1959 Declaration of the Rights of the Child approved by the UN General Assembly (Smith, 2008), which represents a milestone in the establishment of legal rights for children. The 1959 Declaration, which specifically focused on the rights of children, was seen as necessary in spite of the passage of the UN's Universal Declaration of Human Rights that had been approved in 1948, establishing the rights of all human beings. Each of these laws legitimised voices like Key's that argued that children are vulnerable and should have their own rights.

The first effort to establish the 1989 UNCRC was initiated in Poland in 1978. The original plan was to finalise the draft by the end of 1979, which was the International Year of the Child. The first suggested work from Poland was close to a confirmation of the principles in the declaration from 1959, upon which most states had agreed. Since the period from 1959 to 1978 saw a change in the ways both human rights and children were understood, several nations wanted a more radical declaration (Smith, 2008). After ten years of work and negotiations, the nations agreed upon a convention that represented a radical view of children's capabilities and rights; in addition to giving primary consideration to the best interests of the child and children's protection, it also stated that children had radical rights, like the right to express their views freely in 'all matters affecting the child' and for those views to be given due weight (arts. 12–13); children's rights to play and to engage in cultural life (art. 31) were also established. On 20 November 1989, the UNCRC was finally established and was put into practice on 2 September 1990.

In the wake of the century of the child and despite the UNCRC being accepted in most countries, issues such as crime, suppression and unjust decisions are still affecting the lives of many children. Regarding children's right to protection, it is uncomfortable to realise that corporal punishment remains an issue in child rearing practices. In 2019, Japan became the last reported country to prohibit all corporal punishment of children (Crowly, 2020). We see a growing awareness of violence against children as a fundamental human rights issue. Many countries face multiple serious and challenging issues like war, corruption and poverty. Thus, children are often not prioritised, and their right to protection is not fulfilled.

Another important issue in the wake of the century of the child is ensuring that more countries prioritise children's rights in every respect in order

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to achieve sustainable futures. By giving children individual rights, we indicate awareness of children's unique experiences, capabilities and vulnerabilities as a group that needs protection. At the same time, by establishing these rights for children, we also forward an individualistic approach that can overlook notions of humans as interrelated and dependent across generations, structural power-relations, economies and cultural and natural contexts and artefacts. Taking these paradoxes and ambivalences on board, along with the ecological awareness prevalent in part of the 20th century and in the 21st century, we see a surge towards sustainability. A strong voice that contributed to drawing attention to the interdependence of economy, poverty and natural resources and to the huge impact that our management of these resources will have on future generations is the 1987 Brundtland Report (WCED, 1987). In the report, reducing poverty and distributing resources more evenly are central to addressing both present and future needs, together with acknowledging the importance of our ability to live rewarding lives, which are dependent on human relationships and cultural belonging. Therefore, in the best interests of the child, it seems necessary to move from the century of the child to the century of sustainability.

3 Paradoxes and Ambivalence When Approaching the Best Interests of the Child

What it means to be a child and what childhood entails are concepts repeatedly negotiated when dealing with issues impacting children's lives and in cultural, historical, natural and institutional discourses (Cunningham, 2005; Dahlberg, Moss, & Pence, 2013). Voices like Key's and the establishment and worldwide acceptance of the UNCRC have, on one hand, established children and childhood as important both here and now and for future sustainability. On the other hand, these voices and rights are rooted in the global North and are easily construed as opposite to the concept of childhood in the global South (Nieuwenhuys, 2013). This can be exemplified by the Nordic welfare model. The Nordic welfare model that was established after the second world war was founded on ideals with the aim of establishing social welfare, health care and social security for all citizens, including children, as a public responsibility (Satka & Eydal, 2004). The Nordic welfare states have an explicit goal of regulating spaces and relations for children in 'the best interest' of the child. The core ideal is equal opportunities for all children (Korsvold, 2012). At an institutional level, the Nordic countries often serve as role models for good social practices. However, forwarding the Nordic welfare state as a role model

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forms a paradox to our conviction that universal solutions cannot form the answer for contemporary and future problems.

From the 1990s to the present, both international and Nordic political and structural changes have greatly impacted the Nordic welfare states and children's lives in geographically and culturally similar, but politically different, neighbouring countries (Juncker & BIN-Norden, 2013; Korsvold, 2012). Nordic childhoods are multicultural, intermediated and digitalised. The emphasis on children's agency and their legal UNCRC rights have given them a position in society-at-large, and therefore, childhood can no longer be viewed as a special kind of life-world; rather, children are, at all levels, participants in society across sectors (Juncker & BIN-Norden, 2013). Children's participatory potential, along with their need for protection and recreation, have been and continue to be explained and researched.

For the last 25–50 years, researchers in the fields of child culture, educational science, sociology and media have focused on studying and viewing young people in their own rights in order to grasp their perspectives. This research both critiques and analyses the child culture industry, child culture professions and the instrumentalisation of childhood (Borgen & Ødegaard, 2015). To reject the idea of modern childhood as a Western discovery or invention, postcolonial perspectives, in their broadest sense, are concerned with challenging the unquestioned, routine 'us vs. them' approach (Nieuwenhuys, 2013, p. 5). Postcolonial perspectives offer an abolition of this contradiction and instead present a conceptualisation of childhood(s) as the unstable and contingent result of a contextual encounter (Nieuwenhuys, 2013, p. 5). Furthermore, research about materiality as an actor in children's cultural formation, often departing from theories presented by Deleuze and Guattari (1988), is brought to the table. Emerging research points to sustainability raising awareness of how children and humans are entangled through nature, culture, materiality and economy and how their contexts are governed (Grindheim, Bakken, Hauge, & Heggen, 2019). How to meet the paradoxes and ambiguities in these entanglements are core issues in research seeking to identify the best interests of the child.

In the following, we point to three themes that we see as emerging and characterised by paradoxes and ambivalence concerning children's protection, participation and recreation in the wake of the century of the child – all with the overall aim of being in the best interests of the child (United Nations, 1989, art. 2). The first theme takes departure from children's right to protection, which is an overall aim of the UNCRC. We find the concepts of protect or protection referenced in articles 2, 3, 15, 16, 17, 19, 20, 22, 25, 31 and 38. The second theme is children's right to be heard (United Nations, 1989, arts. 12–13) and the third is children's right to play and recreation (United Nations, 1989, art. 31).

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3.1 *The Right to Protection*

Quite recently, the COVID-19 pandemic revitalised the ambivalence of children's right to health protection (United Nations, 1989, arts. 3, 24). Although the virus hits and harms worldwide, the ways countries regulated children's lives during this situation differed, although the various regulations are legitimate in reference to the best interests of children and to inter-generational solidarity. Building upon the same situation and arguments, some countries closed early childhood education institutions and schools, while other kept them open (Drageseth, Berg, & Odland, 2020). Paradoxes and ambivalence on how to protect children in their best interests challenge ways to distribute responsibilities among generations, structures, cultures and established knowledge.

Adults' expectations regarding children seem to be constantly removed from structures established in the best interests of the child and are, instead, projected onto the individual child (Spyrou, 2018). This forms a contract with the web of structural and relational factors and interrelated dynamics that regulates children's spaces for relative autonomy and agency. 'Agency' has been a key concept in the social studies of children and childhood since the 1980s, where studies have been occupied with the relation between social structure and the individual social actor (James, Jenks, & Prout, 1998; Qvortrup, 1999). Agency in the sociology of childhood is understood as individual capacities, competences and activities that persons use to navigate within their given context (Robson, Bell, & Klocher, 2007). In child and childhood (or child-related) research, this awareness of children's agency from the 1980s is often referred to as 'children as beings', rather than 'children as becomings' as future adults and citizens, which indicates that children's lives here and now are of interest and importance (Bae, 2009; James & James, 2004). In contemporary research, it is acknowledged that both children and adults are in a constant state of movement and must learn more throughout their lives than was previously necessary. In that sense, no human being possesses all the knowledge that is needed to live his or her life; all of us are engaged in the continuous act of becoming (Holloway, Holt, & Mills, 2019; Uprichard, 2008). In addition, the view of children as agents with competences also creates some ambivalence; in more modern times, close connections have been made between competences and responsibilities (Lee, 2001). This way of understanding responsibilities, which is taken for granted, is also challenged when children come forward as competent. Even if competent, children also need protection and are not to be responsible in the same ways as adults. Indeed, the views of the child are to be 'given due weight in accordance with the age and maturity of the child' (United Nations, 1989, art. 12.1). The issue of responsibility also forms an ambivalence towards children's involvement for sustainability; although children can

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exercise agency and contribute with fresh points of view, the responsibility for pollution is a heritage from the older generation and is first and foremost the responsibility of the adult generation. Article 24(c) states that children have the right to a healthy environment with no dangers and risks of environmental pollution. The ambivalence of children's involvement, responsibility and right to protection must be balanced and future oriented (cf. Brundtland Report, WCED, 1987).

How to balance the paradoxes and uncertainties when children are experts in the experiences of their own lives and are entitled to protection is a continuous challenge in research aimed at understanding the conditions in which children live. Children are enmeshed with other people, materials, cultures and nature, living within or on the edge of systems that govern their lives. Furthermore, these paradoxes and ambivalences challenge our thinking about what we can know, and about research methodology, and indicate that research about children's participation needs to be viewed in terms of time, context and relations (Mannion, 2009); this also applies to studying children's culture and cultural participation (Borgen, 2011). A singular emphasis on children's 'own' culture can leave the political, societal, institutional and social structures that form conditions for children's participation and protection in the shadows.

We have traced an overall ambiguity related to children's right to protection and distribution of responsibility. Even if children are accepted as being persons here and now (and not only as future adults) who have agency to influence both their own and their peers', teachers', parents' and cultural workers' lives in their given material, cultural, economic and natural contexts, they also have an overall right to protection from all forms of physical or mental violence, injury, abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse, while in the care of their parent(s), legal guardian(s) or any other person responsible for the care of the child (United Nations, 1989, art. 19). In addition, they have the right to the protection of their 'child culture' (United Nations, 1989, art. 31), protection from pollution (art. 24) and protection from the heavy burden of earlier generations' uneven distribution of resources. This calls for considering ethical concerns in childhood research far above national guidelines.

3.2 *The Right to Be Heard*

Research reveals that while children are given the right to be heard (United Nations, 1989, art. 12) through freedom of expression (United Nations, 1989, art. 13), freedom of expression is often conceptualised as participation, meaning ongoing processes of information-sharing and dialogue, which involves children experiencing their own contributions and participation, together

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with those of others, in their daily lives (Bae, 2018, p. 50). However, these rights are restricted compared to those held by adults (Qvortrup, 2009). Children's spaces for participation are often held apart from those held by adults, and consequently, children do not necessarily have control over their structural conditions. Thus, in childhood studies, identity is generally framed in the context of adult–child relationships (de Castro, 2004). This can lead to their being subtly controlled by their parents and other guardians (Hennum, 2010) through the practices of welfare professions and institutions (Cockburn, 2010; James, 2011), justified as being in the best interests of the child. However, research also depicts how children can make room and space for themselves in contexts that are not governed in the best interests of the child (Mannion, 2007), like children living in the streets in Bolivia who negotiate control over specific areas (James, 2011). Also, in Estonia, children had implicit influence due to changing political regimes that differed radically as it came to family and childcare politics (Vihalemm & Müürsepp, 2007). Children's participation and use of media is a topic of concern; however, these concerns also lead to children's cultural and societal participation becoming visible and debated in public (Gaini, 2006). The ways in which children raise their voices – by being a nuisance (on the streets) (James, 2011), by not being as physically active as adults want them to be (Borgen, Rugseth, & Bjorbækmo, 2021), by being aesthetically resistant (Ylönen, 2021) or by expressing anger (Grindheim, 2014) may also cause concerns. Although children's rights to participate are restricted, children are heard in a variety of ways and contexts that are not limited to spaces structured for democratic participation by adult generations. Thus, the entanglements between culture and generations can both empower and disempower children.

Children's right to be heard is also of relevance for research methods and ethics in child-related research. The historical perspectives and changes in child-related studies reflect how both vertical and horizontal processes interact in this research field. This can be exemplified by the way a report about children's humour (Bregenhøj & Johnson, 1988) was met in the 1980s. This report was recognised and debated in public newspapers regarding issues of children's burlesque language culture and researchers' ethical responsibility towards visibility of such language-specific humour. The debate revealed a contradictive view between the public and researchers related to children and children's culture. The debate revealed that in the public view, children's culture happened among children when they were on their own and could only be scientifically examined by looking 'through the keyhole into children's "rooms"' (Ekrem, Tingstad, & Johnsen, 2001, p. 158). Thus, children should be understood from the adult perspective, and no interest was left for children's

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perspectives or for children's participation in society-at-large. This view was contrary to childhood research designed to capture children's perspectives.

In the wake of the century of the child, researchers continued to discuss and explore children's perspectives. For instance, in her meta study of child culture research, Marianne Gullestad (1991) discussed the idea of capturing children's perspectives and how it is a challenge for researchers that requires imagination as well as insight into children's everyday routines. The discussion centred on the idea that children's perspectives are not perspectives on children but are perspectives from children's position in society and culture (Johansson, 2003). An awareness is emerging in contemporary research of the need to focus on children and childhood in spaces for transitions in intergenerational childhoods (Oropilla, 2021) and in the embodied interplay and communication between multiple disabilities and the sensitive significant other, techniques, contexts and objective medical knowledge (Evensen, 2021). There are also suggestions concerning an existential approach in the understanding of both the infant and the involved adult in more reflective ways, emphasising reciprocal models, and more than cognitive capacities and infant's ability to imitate (von Bonsdorff, 2021). Children are resources in iterative research design processes as users of software (Povlsen, Krogager, Leer, & Højlund, 2021). Research seems to come closer to emphasising entanglements between humans, non-humans, objects and different phenomena (Grindheim, 2021), and between cross- and transdisciplinary designs (Borgen & Ødegaard, 2015; Karlsson, 2021). This awareness is of specific relevance when aiming to capture children's perspectives in order to meet the intertwined challenges of children's position and participation when approaching sustainability (Grindheim et al., 2019).

3.3 *Right to Play and Recreation*

Research reveals that many childhood-related topics circulate around the twin poles of fear and pleasure (Borgen, Ødegaard, & BIN-Norden, 2016). A childhood suffused with an awareness of risks and dangers is a phenomenon in contemporary Nordic society. For example, in our rapidly changing society, globalisation, commercialisation and digitalisation are all factors that might cause both pleasure and danger. Children are, both implicitly and explicitly, exposed to cultural artefacts, certain kinds of physical spaces and places, certain types of human age communities and certain varieties of timeframes, all of which are embedded with more or less incongruous signs and shifting modes of how to act, relate and think, open for children to take up, conserve and transform (Ødegaard, 2011). These norms and paradoxes for children's participation in society provide grounds for new understandings of the transformation of childhood in a globalised era. This creates an uncertainty as to how

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children might exercise their rights to play and recreation (United Nations, 1989, art. 31), since what is considered 'good' for children is difficult to know: what are the fears and what are the pleasures, and for whom?

In many cases, these changes and the pleasures connected to children are also sources of fear and anxiety. The image of childhood as a refuge from the horrors of the world is challenged in the global, digitalised media by images of refugee children, alone or with their families, living hand to mouth in camps or en route to asylum, struggling to survive the nearly insurmountable challenges of endless war, cynical profiteering, hostile or fearful citizens of European countries and forces of nature that can take their lives in a moment. Several of the UNCRC rights of these children are not met, such as their rights of protection as refugees (United Nations, 1989, art. 22); they lack food, shelter and medical supplies (United Nations, 1989, art. 24), and they have been stripped of central aspects of childhood: the creation of child culture through play, fun, fantasy and youthful control of space and material (United Nations, 1989, art. 31). In the Nordic countries we are stuck on the idea that we are protecting 'our' children, limited to Nordic youth. This forms a paradox for those who have concerns about sustainability and who press for more even distribution of resources, who advocate for children's right to life, play and recreation globally and who fight politically for solidarity by forcing Scandinavian governments to give shelter to children from the Moria camp of refugees before they are all affected by COVID-19 (Save the Children Campaign, 2020).

Even when children are not subject to any threats, many adults feel that they must be protected by teaching them how to manage risks later in life (Lysså, 2021). Vulnerability and risk go hand in hand with protection and care and what is perceived as appropriate play and recreation. The presumed romantic innocence of children may be an attractive idea to adults; however, this romanticism can manifest itself as anxiety about the eventual, inevitable loss of innocence. Again, here, we trace paradoxes and ambivalence; on one hand, childhood can be seen as a temporary idyll, full of pleasures to be romanticised, forgotten or deemed 'childish' later in life. On the other hand, children themselves can be perceived by adults as sources of pleasure and hope for the future, for example, by performing at high levels and developing some sort of unique or extraordinary talent (Lysså, 2018). Ideas linking children and childhood with pleasure are supported by cultural imagery from high art to advertisements: a mother cradling her child is one of the most iconic images of domestic bliss.

The concepts of risk and risk prevention are brought into early childhood education by political documents and white papers, by several professional knowledge bases, by general cultural discourses, by parents and by children

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themselves. An example is the debate about risk and play. Competing discourses on children's play and recreation debate how to balance guarding children's safety with allowing children to play in physically and emotionally stimulating and challenging environments, which in Scandinavian research is often synonymous with being outdoors in nature (Sandseter, 2007; Sandseter & Sando, 2016). Indeed, Little, Wyver, and Gibson (2011) argued that regulatory factors and requirements for playground safety can be identified as having 'a detrimental impact' on the quality of play. Also, Gill (2007) pointed to the paradoxes and ambiguities that a societal misreading of risk can result in when children face a myriad of restrictions that are intended to support them. If children are restricted from activities that involve taking risks, they will not learn how to assess and respond to risk. From our point of view, we might, thereby, also restrict children from developing extended abilities to cope and to contribute to a higher degree of sustainability by having the courage and competencies needed to face the risk of challenging the status quo of unsustainability.

Emphasising fears and pleasures as they relate to recreation and play might form a contesting approach to children's lifeworld and what is in the best interests of the child. It involves more than facing the ambivalence of safeguarding and challenge; once more, we depict the overall tendency to look to explanations within the individual child. Gurholt and Sanderud (2016) outlined how 'risky play' might be closer to explorative play, where children seek challenges when natural environments invite them into forms of play that may involve risk of physical injury, than to an understanding that children innately seek physical danger and that risk is essential for children's growth (p. 318). We need ways to come closer to understanding children's perspectives, which can provide more insight into relational, situated and contextual play activities, play tools and moods of play practices that are sliding, shifting, displaying and exceeding areas of interest, as, for instance, outlined by Karoff (2013). Finding ways to perform research in order to understand and depict the conditions of children's lives and play and, thereby, support their rights to play and recreation is an ongoing challenge.

3.4 *Summing up – Paradoxes and Ambivalence in Child-Related Research in the Nordic Context*

From this (rather short and superficial) mapping of research in the wake of the century of the child – all aiming at what is in the best interests of the child – we point to several paradoxes and areas of ambivalence when investigating how children's protection, participation and recreation are promoted, actualised and expended. It is depicted that children's protection, participation and recreation are enclosed by paradoxes and ambiguity that supply the grounds for

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gaining new understandings of the transformation of childhood in a globalised era. This underlines that, in research involving children, it is crucial to reflect upon procedural, methodological and conceptual matters. In all areas where children are in focus, ethical considerations are also of vital importance; ethical dilemmas, aspects and deliberations comprise methodological issues. We find that these challenges are difficult to manage in a single research tradition. Therefore, these paradoxes and areas of ambivalence can be seen as conditions for transformative research practices that foster sustainability and the involvement of a variety of stakeholders and that take a more future-oriented and imaginative strand to research designs.

4 Facing Paradoxes and Ambivalence in Research through a Transformative Research Approach

The complexities, contradictions, paradoxes and uncertainties in childhood contexts call for a variety of perspectives to gain insight into how to facilitate sustainable living. In the BIN-Norden network that began in the 1970s, researchers from different disciplines, such as ethnography, sociology, art and history, as well as those who took an interdisciplinary approach, began to question the way in which children were understood. BIN-Norden has emerged as a robust and active children's culture research network, where the subject of research – children and young people and their culture – is shared across disciplines, classifications and sectors. During this period, the sociology of science has problematised the notions of dense disciplinary boundaries versus the knowledge migration of researchers between the disciplines (Sandström, Friberg, Hyenstrand, Larsson, & Wadskog, 2004). A disciplinary specialisation has become an overly narrow box for exploring many of the issues that are relevant in our time, something the BIN-Norden network exemplifies through child culture research.

A key event (Taylor, Flanagan, Cheney, & Seibold, 2001) that is explicitly recounted as spawning the terms 'interdisciplinarity' and 'transdisciplinarity' is the first international conference on interdisciplinary research and teaching in Organisation for Economic Co-operation and Development member countries (OECD) in 1970 (Apostel, Berger, Briggs, & Michaud, 1972; Klein, 2013). Cross-disciplinary science is, according to Sandström et al. (2004, pp. 15–16), an 'umbrella term' for multidisciplinary and interdisciplinary research. These different approaches can be taken by collaborating researchers who represent different disciplines or by researchers seeking to acquire a knowledge base from another field in addition to their own. A multi (multiple) disciplinary

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research design may involve different researchers with different competencies working side by side, often through separate work packages and an agreed division of labor. Each discipline helps to illuminate one aspect of the topic or problem being investigated, and no direct contact is established between the various knowledge bases, such as the disciplines, represented by the researchers. Nevertheless, the collaboration is characterised by the addition of new knowledge about the topic or problem. Multidisciplinarity is a condition for both interdisciplinarity and transdisciplinarity. In interdisciplinary scientific work, the approach is to integrate the knowledge that the researchers possess with the aim of elucidating a topic, problem or area of knowledge together. The different fields of knowledge agree on a common conceptual apparatus and actively exchange theory and method (Sandström et al., 2004, p. 16). This requires professional interaction and close communication between those working in collaboration. Whether the research can be characterised as multidisciplinary or interdisciplinary depends on what forms it takes and what consequences it will have (Nicolescu, 2014). According to Klein (2013), debates about the definition of interdisciplinarity are related to concepts such as interrogation, critique, transgression and transformation, as well as to the quest for reconfiguring, reformulating and resituating, and they can be linked to struggles for social change that began in the 1960s and 1970s (p. 196). The struggles for social changes emphasised are close to the struggles for children's rights in the 20th century.

The sociology of science deals with how concepts and working methods change over time and how new concepts become valid. 'Trans' means transgression, and transdisciplinary research may be the current term of choice when trying to tackle a complex problem where there is disagreement as to what the problem is. Transdisciplinarity contains possibilities for syntheses or compositions that appear as new content. For example, a research team may develop a research design and conduct research through a division of work that distributes roles and responsibilities between multiple members, where the team comprises researchers as well as members who are not researchers.

The integration in transdisciplinary research can, thus, consist of both horizontal and vertical elements: collaboration between researchers in different disciplines and people who know the problem area, for example, through their professional practices or from being affected by it in other ways. Augsburg (2014) referred to two 'main schools' of transdisciplinarity. In the first main school, represented by Nicolescu's ontological notion of reality as plastic and simultaneously outside and inside us, a subject/object interaction (2008, p. 12), 'We are part of this Reality that changes due to our thoughts, feelings and actions. This means that we are fully responsible for what Reality is' (Nicolescu,

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2014, p. 25). In the second main school, the 'widely recognized current (frequently referred to as either the Swiss, Zurich, or German school) focuses on transdisciplinarity as a research approach to addressing complex societal problems such as those related to sustainability' (Augsburg, 2014, p. 235). Here, 'transdisciplinarity is conceptualized as problem-focused with an emphasis on joint problem solving at the science, technology, and society interface that goes beyond the confines of academia' (Augsburg, 2014, p. 235).

The paradoxes and ambivalences we trace in the wake of the century of the child appear to go beyond the confines of academia. Several considerations required examination, like political fights for children's rights. Childhood is political and cannot be identified and discussed from one perspective alone. Meetings between disciplinary perspectives, and between research-based knowledge and general understandings in society, contribute to changes in understandings and concepts about children's culture and childhood. Therefore, the transdisciplinary approach appears to be of high relevance for childhood research in the century of sustainability.

In accordance with the paradoxes and ambivalences we find in the wake of the century of the child, when taking departure from the UNCRC, we find Klein's (2015) conceptualisation of transdisciplinary research to be of specific relevance. Klein (2013) argued that 'calls for transdisciplinarity arrived at a moment of wider crisis in the discourse of human rights accountability' (p. 197). Klein (2015) offered perspectives on how problems in the world can be met and solved and argued that, since the future is unpredictable, we will also need several conceptualisations of transdisciplinarity.

> As an epistemological project, transdisciplinarity will be aligned more closely with the discourse of transcendence. As a method of knowledge production, it will be linked with utilitarian objectives [problem solving], although they range from manufacturing new products to new protocols for health care and environmental sustainability. As a form of critique, it will continue to interrogate the structure and logic of the university and its role in society. (Klein, 2015, p. 15)

Augsburg (2014) departed from Klein's (2015) hypothesis that transdisciplinary individuals can contribute to the evolution of transdisciplinarity's discourse, and the question of how one becomes a transdisciplinary individual and how to take a transdisciplinary approach in research. Becoming a transdisciplinary researcher requires being an intellectual risk taker and institutional transgressor, as well as transdisciplinary practices and virtues, creative inquiry and cultural relativism. Augsburg (2014) argued that the 'transdisciplinary attitude'

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has paved the way for considerations of transdisciplinary skills, characteristics and traits, along with individual transdisciplinary virtues and practices, and that these can be trained (p. 244). While heterogeneity can be viewed as transdisciplinarity's biggest threat to success, it is also its fundamental characteristic. Thus, transdisciplinarity presupposes an ethic of shared knowledge that differs from traditional academic norms and structures (p. 234).

From our point of view, this can be a way to gain new insight into a variety of understandings, including how to facilitate the best interests of the child in the century of sustainability. In line with Augsburg (2014), who stated that transdisciplinarity presupposes a moral philosophy of shared knowledge (p. 234), we see that the paradoxes and ambivalences that we trace also call for a methodological ethic, which must be expanded and trained to identify conditions that change, interfere and contradict. These arguments serve as motivation for more insight and research practices that can face the contemporary uncertainties by undertaking transdisciplinarian research methods and more imaginative strands to research.

5 Summary

Conducting research in the best interests of the children presents challenges. Investigating how children's protection, participation and recreation is promoted, actualised and expended in the wake of the century of the child reveals that children's lives, historical voices and legal rights, and changes in global and local societies, nature and research are entangled and offer both new and contradictive knowledge about children and childhood. From our outline, where the 1989 UNCRC is seen as a milestone for ensuring children's protection, position and well-being, we face some of the same challenges referenced in the arguments for establishing the UNCRC. Children are still being neglected in several parts of the world, and corporal punishment is still an issue. In addition, we see that by giving children individual rights, we not only increase awareness of both children's vulnerable position and their unique capabilities, but we also forward an individualistic approach that can leave notions of humans as dependent across generations, structural power-relations, economies, cultural and natural contexts, and materials in the shadows. Taking a closer look at how the rights to protection, participation, and play and recreation are promoted, actualised and expended in the wake of the century of the child seems to lead us to what Klein (2013) pointed to as the crisis of human rights accountability. It calls for avoiding universal solutions and colonialisation and for fostering sustainability in ways of organising our human, cultural

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and natural resources. Seeing the paradoxes and uncertainties as conditions for change and transformations in research as well as in practices, this chapter argues for future-oriented and sustainable transdisciplinary approaches to research designs and practices as we, as experts, together with citizens and policymakers, try to make the right choices in the best interests of the child.

Notes

1 Soon after it was published in 1900, the book was translated into 13 languages.
2 Elsa Köhler (1879–1940) was a Swedish psychologist and educationalist whose legacy was the creation of links between German Froebelian ideologies and Swedish pragmatism. She was an early advocate for the acknowledgment of children's self-activity and learning through play (Tallberg Broman, 1995).
3 Charlotte Bühler (1883–1974) was a pioneer child-oriented psychologist who is known for the contributions her research on early ages made to the understanding of human beings' tendency to strive for personal satisfaction in sex, love and ego recognition, their tendency for self-limiting adaptation for the purpose of fitting in, belonging and gaining security, and their tendencies toward self-expression and creative accomplishments and toward integration or order-upholding (Woodward, 2012).
4 The law was named after Johan Castberg, a member of the radical wing of the Liberal Party, who became a politician and head of the Labour Democrats. Throughout his political life, Castberg was a proponent of women's and children's rights and of bringing social differences into balance.

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Article

Fostering Cultural Sustainability in Early Childhood Education through a Neighbourhood Project

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Abstract: Culture is the life blood of a society, which influences people's worldviews, values, and behaviours. Research has confirmed that children's participation in culture helps develop thinking skills, builds self-esteem, and improves resilience. This paper aims to explore how a purposely designed project can foster cultural sustainability through a case study of a neighbourhood project conducted in Chinese and Norwegian kindergartens. A qualitative research methodology is utilised. Major data sources are an overall project plan prepared by one of the Norwegian university researchers, project descriptions and PowerPoint presentations from the kindergartens, as well as workshop notes taken by one researcher during the workshop, complemented and triangulated by the follow-up reflective narratives from three kindergartens. Qualitative content analysis and comparative analysis are used to analyse the collected data. Findings have indicated that kindergartens hold similar views on culture and cultural stainability. Though the actual activities are diverse and implemented in different ways, the goal of fostering cultural sustainability is achieved in all participating kindergartens. Children not only have gained knowledge of their neighbourhood and problem solving and social skills but also have developed sense of belonging and emotional link with their local culture through the active participation. More importantly, this study has indicated that purposely designed projects/activities can promote early childhood education for sustainability and quality of early childhood education. It is thus recommended cultivating student teachers' and kindergarten teachers' competence to design projects/activities integrating different dimensions of sustainability in early childhood teacher education

Keywords: cultural sustainability; neighbourhood project; ECE; Norway; China

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> *"Culture is the fountain of our progress and creativity and must be carefully nurtured to grow and develop."*
>
> World Commission on Culture and Development

1. Introduction

Culture is the lifeblood of a society, which influences people's worldviews, values, and behaviours. "The crisis we face is first and foremost one of mind, perception, and values" [1] (p. 27). The global environmental and unsustainability crisis is also a crisis of culture [2]. Research has confirmed that children's participation in culture helps develop thinking skills, builds self-esteem, and improves resilience. As the world is becoming increasingly diverse, it is important that we understand and appreciate our own culture and at the same time other cultures. Besides, to achieve sustainability about making an appropriate use of the planet's resources, culture must be at the centre of development strategies [3], because cultures frame people's relationship to others in their society and the world around them, and condition their behaviours [4].

Early childhood education "(ECE) has all the possibilities in the world to lead children into interest, knowledge, and values that will give support for a more sustainable life and world, since children by nature are open-minded and curious towards the world around them including human and animals" [5] (p. 1) and "education for sustainability can be a driver for quality ECE" [6] (p. 347). Therefore, education for sustainability should be advocated and promoted in ECE [7]. Research indicates that most early childhood education for sustainability (ECEfS) and related activities focus on an environmental dimension with cultural/social, economic, and good governance dimensions being neglected [8]. The project that this paper reports aims to bridge and close this gap with its overarching aim to promote ECEfS through cross-cultural community of practice (CoP) with the major focus on cultural sustainability in Chinese and Norwegian ECE contexts. This paper aims to share experiences and practices of the efforts.

2. Background and Research Context

The project is a result of a China–Norway collaboration, which started with an early childhood teacher education exchange programme in 2004. Later, the research collaboration started. Then in 2015, kindergartens from both countries were included in the collaboration and the number of participating kindergartens is now five in China and two in Norway. Thus, a cross-cultural CoP involving teacher educators/researchers at universities, student teachers, kindergarten principals, and teachers was established, aiming at improving ECE through teacher education, research, and kindergarten network with education for sustainability as a major focus.

Sustainability has always been a key word in the collaboration in terms of the contents of collaboration and the cross-cultural collaboration itself. Kindergartens in both countries have been sharing their practices to inspire each other in annual meetings held in Norway and China alternatively. Realising the importance and the lack of focus on cultural sustainability in ECE, in 2019, the cross-cultural CoP decided to work on a project titled Our Neighbourhood to promote cultural sustainability in both countries through promoting kindergarten children's knowledge of and sense of pride in their local cultures. The major rationale for the project is that (1) culture takes diverse forms across time; (2) cultural diversity is a source of exchange, innovation, and creativity and is necessary for humankind and, thus, should be recognized and affirmed for the benefit of present and future generations [9]; and (3) all individuals are vehicles of culture, as well as participants in its development [10] (p.218). The researchers of this cross-cultural CoP suggested some topics under three broad categories that kindergarten teachers could use for their project. The three categories are: (1) the local natural environment; (2) local heritages, histories, and historical building; (3) local traditions and customs. The kindergartens had the autonomy to decide what they wanted to work on as long as the focus was on local culture(s). All the seven kindergartens participated in this project. Six months after the initiation of the project, a workshop was planned to share project plan and progress.

Initially, workshops were planned to be held for the participating teachers and children to present their projects/activities in Beijing in April 2020. Due to COVID-19, a digital workshop was held instead in the schedule month. Kindergarten principals and one to three kindergarten teachers who have led the project participated in the workshop. One presenter from each kindergarten shared their projects followed with questions and discussion on the presented projects. During the workshop presentations, presenters and participants were asked to reflect on and share answers to questions, such as (1) what is cultural sustainability and how is it achieved through the project; (2) what do kindergartens have in common when talking about cultural sustainability; (3) what differs in the way it is understood and ways of achieving it through the projects/activities. After the workshop, each kindergarten was asked to write reflective narratives about the project with some guiding questions such as (1)What does neighborhood mean to you in the context of kindergarten?; (2) What does cultural sustainability mean to you?; (3) In what way did your kindergarten neighborhood project presented in April relate to cultural sustainability?;

(4) What challenges have your kindergarten met in the process?; (5) What suggestions would you like to give for the next stage of this neighborhood project? The prompts were provided by the participating researchers in Norway. Utilising the materials mentioned, the present paper aims to explore how a purposely designed project can foster cultural sustainability through a case study of a neighbourhood project conducted in Chinese and Norwegian ECE contexts. To achieve the aim, the following research question is asked: How can a purposely designed project foster cultural sustainability in the researched ECE context?

3. Theoretical Perspectives

3.1. Culture and Cultural Sustainability

Culture is both an everyday and an academic concept, which makes it complicated to define. Culture has been defined differently [11]. In this paper, culture is seen as a composition of "the values, beliefs, languages, knowledge, art and wisdom, with which a person or people, individually or collectively, expresses both their humanity and the meaning they give to their life and its course" and a process that allows people "to understand, interpret, and transform reality" [12]. There is both a material culture "representative of the physical creations made, used, or shared by the members of a certain society" [13] (p. 141) and immaterial culture "the abstract or unseen human creations by the society fashioned towards the behavioural influence of the said society" [13] (p. 141) including "symbols, languages, values, and norms" [13] (p. 141). Furthermore, "culture is neither static nor unchanging but rather is in a constant state of flux, influencing and being influenced by other world views and expressive forms" [14]. The classifications of culture and its changing nature have laid a foundation for scholars (e.g., Axelsson et al., WCCD) to set criteria of culture sustainability.

Cultural aspects of sustainability have mainly been discussed as a part of the social sustainability or combined with social sustainability (socio-cultural sustainability) [15]. Cultural sustainability was first mentioned by the World Commission on Culture and Development (WCCD) in the report titled Report of the World Commission on Cultural and Development in 1995 when the importance of future generations gaining access to cultural resources was stressed. It is mentioned in the report that it is wrong to treat culture merely as an instrument for sustaining something or treat it as static, instead culture should be respected and valued for its own sake [16]. The same report also points out that "cultural valuations and cultural activities can be looked at in terms of cultural sustainability" [16] (p. 207).

Dessein et al. [15] and Soini and Dessein [11] not only see culture as a dimension of sustainability but also illustrate its relationship with sustainability through three roles culture has in sustainability, which they call three representations. The first representation, called culture in sustainability, sees culture as an independent dimension of sustainability, thus, cultural sustainability. This representation points to the importance of conservation, maintenance, and preservation of cultural capital in different forms such as arts, heritage, knowledge, and cultural diversity for the next generations. The second representation, culture for sustainability, stresses culture's role in achieving other dimensions of sustainability. The third representation, culture as sustainability, emphasises culture as an indispensable foundation for meeting the overall aims of sustainability and sustainability becomes embedded in culture [15].

In this article, we use the first and the third representations as the theoretical departure and an analytical framework. In addition, we also use three criteria of cultural sustainability categorised by Axelsson's, et al. [11]. They are listed as follows: (1) Material Early: cultural heritage in terms of human built objects, landscapes, and combined man and nature systems; (2) Immaterial New: cultural heritage such as practices, representations, expressions, knowledge, skills, and instruments, objects, artefacts and cultural spaces associated with practices, including tradition, identity, values, cultural diversity, spirituality, and aesthetics; (3) Emerging: tools and skills needed to understand and transform the world towards

sustainability, including but not limited to literacy, creativity, critical knowledge, sense of place, empathy, trust, risk, respect, and recognition. Axelsson et al. use the term cultural heritage, but we use the term culture in presenting the findings.

3.2. A culture as Sustainability: Cross-Cultural CoP

The longstanding collaboration is called cross-cultural CoP because it is composed of a group of people who share a common concern and interest and who come together to fulfil both individual and group goals with focus on sharing best practice in ECE with ECEfS as a major theme and creating new knowledge to advance professional practice [17,18]. Besides, this CoP has been connecting participants and providing them with a platform for regular dialogues, which has stimulated learning and better practices. All these have indicated that the cross-cultural CoP serves as foundation to realise ECEfS. Additionally, the establishment and sustainability of this cross-cultural CoP in many ways follows the lifecycle phases of CoP illustrated by Cambridge, Kaplan, and Suter [19]. In the initial stage, the cross-cultural CoP was established, its goals set (mainly collaboration at higher education level to improve the education of ECE teachers and, thus, the practices in the field), and roles and activities of the participants defined ("inquire" and "design"). The collaboration was, thus, developed, piloted, and launched ("prototype" and "launch"). After several years' successful collaboration, the CoP then included kindergarten partners and extended the collaboration from education to practice. The "grow" phase, which has lasted to date, thus, enters the "sustain" phase.

Table 1 below illustrates the theoretical departure and analytical framework of this article.

Table 1. Theoretical departure and analytical framework (adapted from Axelsson's, et al., [10] (p. 218)).

Representation	Categories
Cultural sustainability	Material culture: in terms of human built objects, landscapes, and combined man and nature systems.
	Immaterial culture: such as practices, representations, expressions, knowledge, skills, instruments, objects, artefacts and cultural spaces associated with practices, including tradition, identity, values, cultural diversity, spirituality, and aesthetics.
	Emerging culture: in terms of tools and skills needed to understand and transform the world towards sustainability, including but not limited to literacy, creativity, critical knowledge, sense of place, empathy, trust, risk, respect, and recognition.
Culture as sustainability	Cross-cultural CoP

4. Materials and Methods

4.1. Research Sites and Participants

Data have been collected from five kindergartens from China and two kindergartens from Norway. The major reason for choosing them is that they are members of the cross-cultural CoP and have carried out a Neighbourhood Project. For confidentiality, the country initial plus a number is used to identify them and distinguish them from one another in presenting the findings. Table 2 illustrates the codes of the participating kindergartens.

Table 2. Codes of participating kindergartens.

Country	Code				
China	CN1	CN2	CN3	CN4	CN5
Norway	NO1	NO2			

4.2. Data Collection

Major data sources are an overall project plan prepared by one of the Norwegian university researchers, project descriptions and PowerPoint presentations from the kindergartens, as well as workshop notes taken by one researcher during the workshop and checked by another three among all the participating researchers. All the kindergartens sent their project descriptions and PowerPoint presentations through emails beforehand. Each kindergarten was given 30 minutes to present and discuss their project with participants. All the above data were collected in 2020.

Based on the preliminary findings generated from project descriptions, PowerPoint presentations, and workshop notes, kindergartens were asked to write reflective narratives. In January 2021, reflective narratives were collected via emails from the participating kindergartens to supplement and triangulate evidence from the above-mentioned sources. All were conducted in English. This online approach was a necessity given the difficulty in travelling around at this critical period of COVID-19.

4.3. Data Analysis

Qualitative content analysis is conducted because it "allows researchers to understand social reality in a subjective but scientific manner" through exploring "the meaning underlying physical messages" [20]. Comparative analysis is utilised to find out "invariant and variant relationships between studied phenomena in different countries" [21] (p. 68). An example of the comparative analysis is the similarities and differences among kindergartens in terms of how they understood neighbourhood and designed and implemented the activities accordingly. Comparative analysis has been used in the whole analysis process.

Data have been analysed inductively in the following stages. All data were first saved in one spreadsheet in Excel with the same parts of project information being saved in parallel cells. This process allowed an overview of all collected data and at the same time coding them individually. After that, the initial codes were refined and reorganised into themes with reference to theoretical and analytical framework.

4.4. Ethical Considerations

The ethical issues have been considered at all stages of the project and the writing of this article. Ethics focuses on both the role of the researchers and the people being studied. Research ethical guidelines elaborated by the National Committee for Research Ethics in the Social Sciences and the Humanities (NESH) (Details can be found: https://www.forskningsetikk.no/en/guidelines/social-sciences-humanities-law-and-theology/guidelines-for-research-ethics-in-the-social-sciences-humanities-law-and-theology/, accessed on 15 April 2021) of Norway have been rigorously followed in the data collection process and finding presentation. All participants have been well informed with the use of their submitted materials as research data and aims of the research at the initial stage of the project as well as in the April workshop. They have also been informed that the participation is voluntary, and they can withdraw their consent anytime without giving a reason or having any negative consequences. Oral consent has been given by all the participating kindergartens.

5. Findings

Findings are presented under the following five themes namely (1) understanding of culture and cultural sustainability; (2) projects/activities to foster cultural sustainability; (3) outcomes of the projects/activities; (4) challenges and opportunities; (5) culture as sustainability—cross-cultural CoP, supported with quotes from different data materials collected for this article. When quoting what participating kindergartens have written and presented, we use the codes we have assigned to them. When we quote what participants have discussed in the workshop, we cannot give a code to them because they are not identifiable in the meeting notes. The quotes are quoted exactly as they have been written/articulated without any changes by the authors.

5.1. Understanding of Culture and Cultural Sustainablity

Seen from the perspectives they have taken into consideration in the design of projects/activities, it is evident that kindergartens share a similar understanding of culture and they see culture as something material, immaterial, and emerging. Table 3 illustrates how different categories of cultures are operationalised in the project activities.

Table 3. Overview of categories of culture and elements in practice.

Categories of Culture	Elements in Practice	Kindergartens
Material	Historical buildings such as old farmhouses, museums, libraries	NO1, NO2, CN1, CN3, CN5
Immaterial	Knowledge, skills, instruments, objects, artefacts and tradition, and aesthetics (art pieces)	NO1, NO2, CN1, CN2, CN3, CN5
Emerging	Knowledge and skills to fight against COVID-19	NO1, NO2, CN3, CN4

Kindergartens listed in Table 3 that explore material culture have taken children to historical buildings, such as the nearby farmhouse that people in the past lived in, museums that tell the history and development of ethnic groups, or the university that the kindergarten is affiliated to. In terms of immaterial culture, children have learned about how people in the past cooked and preserved food, played, used different tools and instruments for different purposes, how people in the past celebrated holidays and created art pieces and music. Besides material and immaterial cultures, emerging culture appears in the form of helping children gain knowledge and skills to fight against COVID-19. Because of the sudden outbreak of the pandemic, kindergartens have also made changes accordingly. One Chinese kindergarten have changed their plan to build online platforms to help parents/carers and children gain and share knowledge and skills to prevent spreading the virus while the two Norwegian kindergartens have been taking measures with children to prevent it from spreading since they were reopened in April 2020 after five weeks' lockdown.

In addition, they have articulated what cultural sustainability means to them. Some think it is about preservation of historical cultural capital such as historical buildings, as one of the participants of the workshop said, "there is discussion about preserving historical buildings in both China and Norway and this is part of cultural sustainability and this is sustainability of our history . . . we have to know our own history and be proud, and then we can understand others better" (CN5). Others see it as basis for a decent life saying, "Social and cultural sustainability is about ensuring that all people have a good and fair basis for a decent life" (NO2).

5.2. Activities to Foster Cultural Sustainability

5.2.1. Different Understanding of Neighbourhood

As the title of the project indicates, the project takes its point of departure from getting to know the culture of the neighbourhood. At the same time, it is left to the participating kindergartens to define what neighbourhood means to them, which results in different definitions.

According to dictionary definitions (e.g., Cambridge or Merriam-Webster), a neighbourhood can be a geographical area that surrounds people's homes and can be relational in terms of the people living near each other or giving a sense of closeness. Three of the kindergartens (two from Norway and one from China) define neighbourhood from a geographical point of view and the activities they have designed, thus, are related to the nearby surroundings. One kindergarten from China look at the bigger surrounding of their kindergarten, that is, the district where the kindergarten is located. Three Chinese kindergartens define neighbourhood from a relational perspective so one conducts a project

on getting to know the different ethnic groups of China and the other is doing a project involving children's families. The third involves parents and carers (mostly grandparents) and establishes an online community to train them to educate their children. One of the kindergartens also justifies why they focus on the relational perspective of neighbourhood/community, saying, "less attention is paid to the interaction between people. The understanding of community is mainly based on the architecture and characteristics of the city, reflecting the concept of living as a home" (CN 4).

5.2.2. The Different Activities

Though the participating kindergartens hold similar views in terms of culture and cultural sustainability, they have different understandings of the concept of neighbourhood and have initiated different activities to practise and promote cultural sustainability. Table 4 below is an overview of the topics and major activities of the participating kindergartens.

Table 4. Projects of the participating kindergartens.

Understanding of Neighbourhood	Themes	Major Activities
Spatial dimension of neighbourhood	The development of our neighbourhood.	Visiting the neighbouring schools, shops, library, gym. Exploring life in the past through the life of a boy living in the nearby farmhouse.
	Neighbourhood project	A music project and visiting the neighbouring farm and hiking in a different local natural environment.
	Little feet walking around the district.	Visiting eight different characteristic towns in the district, especially the specialty each town is famous for.
	Bathed in the sun on the campus.	Visiting the university's library and museum; inviting professionals to share their knowledge such as doing physical and chemistry experiments, fire drills, using songs to lead a life during COVID-19.
Relational dimension of neighbourhood	Cultural traditions	Playing a traditional folk game with toddlers; inviting grandparents to introduce calligraphy and allow children to play with inks. Celebrating traditional Chinese holidays; building an online community to teach parents to educate their children.
	Multi-ethnic China.	Visiting the China Ethnic Museum; taking notes on the ethnic groups they chose to learn about; sharing their knowledge with peers after the visit.
	Big vision through children's eyes, co-growth with homes fighting COVID-19.	Establishing an online community for sharing, such as an art exhibition, storytelling, I have a chat with my friend, I want to go to primary school.

From the overview of the activities, it is clear that kindergartens have different themes and activities for children to get to know local cultures and practice and foster cultural sustainability. Some trace back to the past while others work on the contemporary emerging challenge that is COVID-19. Some undertake the activities at kindergarten level while others involve parents and the community.

The project descriptions and workshop presentations have indicated that the ways the projects have been carried out are diverse. What is common within culture is that both Norwegian kindergartens have used stories as starting point and they have also made good use of the rich natural resources around them, while activities in Chinese kindergartens undergo three stages: preparation, implementation, and reflection/showcase. Learning outcomes are emphasised. Besides, the projects are of different timeframes. Some are long-term (three years) projects or still going on at the time of the workshop presentation with some being short-term (a few weeks) projects.

5.3. Outcomes of the Project

5.3.1. Documentation of the Process and Display of the Products

The kindergartens use different forms to document the process and display the outcomes and products of the project. Different art forms have been used for documentation. Exhibiting children's drawings is a common approach. "When we came back, we made exhibition and the parents can see what we have done for the day. Since we don't have a picture of C (the boy who was the son of the owner of the house) (There was a name in the original one, we deleted it for confidentiality.) so the children drew their own picture of him. They also had drawn the house" (NO2). Because of COVID-19, children could not meet physically until June 2020 in China (The Chinese participating kindergartens started winter holiday in January 2020 and were not open for children until June 2020), the kindergartens encouraged parents to help children to keep records (photos and/or videos) of the process. "A boy in our kindergarten made a picture book with his father talking about ways to fight against COVID, and what people have been doing in the neighbourhood. Besides, he role played with his mum about what to do and not to do" (CN4).

When it comes to displaying the final products as a result of the project, some have used artistic performances such as a musical and drawings, while others have asked children to demonstrate to other children/teachers/parents what they had learnt in the project through oral presentation and/or an exhibition. The common way of displaying the final products are exhibitions of children's work, such as handcrafts and drawings. "The activities back in the kindergarten as all shown in the kindergarten hall. Children make architect or costumes of ethnic groups they visited. They also presented to other children the minority groups they have seen and what they knew about them with the help of pictures they took during the visit of the museum" (CN 1). One of the kindergartens (NO1) adapted the local mythology for a musical. All the children who performed in the musical remembered their lines and performed successfully, which was videotaped and shared with parents and a wider audience. CN5 held a fair for the children, teachers as well as parents and carers, where there were different stands for children to sell the traditional snacks which they learned to make in the project. There were also stands where children could pay to play traditional games they learned to play in the project. Children earned money at their own stand and spent it on snacks and/or games of other stands.

5.3.2. Gains for the Children from Participating the Project

Project description, workshop presentation, and reflective narrative data have indicated children have gained not only knowledge about their neighbourhood/community but also different skills.

First of all, all participants have gained better and in-depth knowledge of their local cultures and have developed a sense of identity, belonging, and pride, as reflected by two participating kindergartens, "we use music and different artefacts to learn about the neighbourhood. Children and teachers learned a lot" (NO1) and "Children, teachers, and parents know their hometown and local culture more and established a deeper emotional link" (CN5). Besides, they share similar views of the importance of knowing local culture as uttered by one participating kindergarten, "have knowledge of the neighbourhood creates understanding, commitments and love for surroundings" (NO2).

Some kindergarten teachers have also mentioned that children have become engaged, independent, and autonomous learners. "Children discuss and design their routes go visit different ethnic exhibition halls for information. Children will prepare information to introduce to their peers the information of the ethnic groups. They form their own groups. They design their own group flags" (CN1). "The project has given us more knowledge about the kindergarten's immediate environment and the children have been very motivated and interested" (NO1).

Additionally, it has been pointed out by some teachers that children have gained problem-solving and social skills in the process of doing the activities, as shared by the following two kindergartens: "children had problems and they solved problems together.

They had arguments but they made up after communications and dialogues." (CN1) "social emotional development, what COVID 19 is and their cognitive development, and social emotional development, express their emotions online . . . . Chat with friends online, play with friends online as well as learn to manage time and self-control" (CN4).

5.3.3. Gains for the Teachers and the Kindergartens from Participating in the Project

Participating kindergartens have pointed out that doing this project has promoted teachers' critical reflection in terms of how to plan and implement activities in the future. "Teachers can also listen and observe children more in order to stimulate the desire to explore and trigger deep learning. We need time to get to know children. Phase 1 has been too fast. We need to improve that" (CN5).

Collaborating with parents is an important part of kindergarten teachers' job in both countries. In Norway, parents' and carers' involvement in the project is more as audience while in China parents and carers have been involved in doing the activities together with children or teaching some traditional folk games or folklores. "Some folk games are in the curriculum, at the same time we invited parents and grandparents to share the folk games they played when they were young. For example, a grandma shared an old folk game, and teachers gained from different learning opportunities" (CN 2). Furthermore, in those kindergartens that have involved parents in China, teachers have reflected on collaboration with parents and have come up with strategies. "We found that parents have some special need and they feel nervous especially for those whose children are going to school. We have held some talk about going to school and share information. We set up groups for parents to talk about their special needs and we have one issue a month to discuss. We do a lot, but we need to know parents' need first" (*CN5*).

Furthermore, all involved parties have benefited differently through the interactive activities and a most important one is parents/carers getting to know children and ways to communicate with them. The following two quotes are illustrative. "We made exhibition and the parents can see what we have done for the day" (*NO1*). "We teach parents through face-to-face interaction and videos demonstration" (CN4).

5.4. Challenges and Opportunities

While sharing good experiences about the project, all kindergartens have mentioned challenges COVID-19 has brought to them. At the same time, they have mentioned how they quickly took actions to make changes. For those who started the project before the outbreak, they had to make some changes. As one shared, "Unfortunately the COVID-19 situation brings the kindergarten challenges that we one year ago would not have imagined. Nevertheless, we see that it has given us some unexpected opportunities . . . Children have been hiking to well-known areas around the kindergarten, but they have also been exploring new areas. We are very lucky to have a location near nature" (NO1). When the pandemic started, a kindergarten initiated a project to help children take active actions to fight the pandemic. They shared, "In 2020, the sudden outbreak of COVID-19 disrupted the rhythm of people's life. The extra long vacation forced the children to stay at home and fight against the pandemic passively. They could neither go out for activities nor meeting their friends, . . . This situation makes us teachers think a question-how to let children's home fight against COVID-19 actively instead of passively. So, we started our project" (CN4).

In both Norway and China, there was a lockdown period for kindergartens, so it was impossible to have physical meetings, which has brought challenges to children and teachers. All kindergartens have used online communication to keep in touch with children and family. Another challenge worth mentioning is that a kindergarten has mentioned in the reflective narratives that it has taken some time for them to learn about cultural sustainability and how to initiate related projects.

5.5. Culture as Sustainability—Cross-Cultural CoP

As introduced above, this cross-cultural CoP has been working together for over 15 years and the inclusion of kindergartens over five years. All have indicated that sustainability is embedded in the CoP in terms of the projects they have carried out and the CoP per se.

All participants have expressed that this is a good platform for their professional and personal development through exchanges of knowledge, ideas, experiences, and practices. In doing this project on cultural sustainability focusing on local culture with autonomy to decide what to do in practice and then share the experiences, they especially point out that they have learnt each other's cultures better and been inspired for better practices. Some of them said, "It's inspiring that you connect with the practice with sustainable development," and "I see children's deep learning. That inspired us." After the workshop, one of the kindergarten principals said that all presentations were inspiring and wanted to have a copy of them. The participating researchers shared the presentations with all participants after getting consent from all kindergartens to share.

Besides being inspired, participants in the project have been encouraging and supporting each other. Kindergartens in China are required to provide a good physical environment for children, which in practice means that teachers have to change the settings and decorations on the wall quite frequently, and even every day for some, and there are other administrative duties to beautify the environment as well. One participating kindergarten expressed that they adapted the rules and regulations after one of the kindergarten leaders visited Norwegian kindergartens and gained inspiration. They believe it is important that teachers spend more time with children instead of making changes to the physical environment frequently, which have been supported by most participants, and one said, "I want to support the idea of being outspoken as professionals. The officials have different perspectives. We know what is better for the children." This has indicated that kindergarten teachers have gained professional confidence in trusting their professional judgement for their pedagogical practices, which is of great importance for the kindergarten teaching profession.

6. Discussion and Implication

6.1. Kindergartens Are the Place for (Cultural) Sustainability Education

In line with what Davis and Elliott [7] have proposed, that education for sustainability should be advocated and promoted in ECE, the findings of this article have confirmed that kindergartens can and should be the place for sustainability education. Findings have indicated that the general aims set out by the project have been achieved. Though different activities have been planned and implemented, the knowledge of the place they live, social and communication skills as well as the sense of love for and the emotional link with their neighbourhood that children have gained, are similar in both cultures. The difference is that Chinese kindergartens stress social and problem-solving skills more than Norwegian kindergartens. One possible explanation is that Chinese tend to be more pragmatic and believe that children/students should gain knowledge and skills through education [22]. Another explanation is that the projects Norwegian kindergartens implemented have embedded nature in the activities while the projects Chinese kindergartens carried out are more of socio-cultural dimension. Because of the safety policy in China, kindergarten children are seldom taken into nature for activities, while in Norway outdoor in nature is part of kindergarten education [23]. Further study is needed to explore how this difference can impact children and ECEfS.

The findings also confirmed that "education for sustainability can be a driver for quality ECE" [6] (p. 347). As illustrated in the findings, this project has enhanced professional development of the participating kindergarten staff not only in terms of how to implement projects on sustainability but also being professionals who can make professional judgements on their professional practices. Additionally, with their involvement, parents

have gained ways to fight the pandemic, to educate their children and to collaborate with kindergartens. All are important indicators for the improvement of the quality of ECE.

6.2. Cross-Cultural CoP Makes a Difference to ECEfS

Findings have indicated that this cross-cultural CoP consisted of university teacher educators/researchers, and kindergarten staff makes a difference for ECEfS in that it provides a platform for professional development and learning. This corroborates other researchers' findings, e.g., CoP results in participants' professional development and lifelong learning [24], scholarly teaching and scholarship of teaching and learning [25]. For kindergarten participants, they gain intercultural knowledge and are inspired and supported in what they are doing. The university teacher educators/researchers provide a framework for the kindergartens to carry out projects and support if needed. A cross-cultural platform for dialogues has also been established to allow people to get to know, learn, and gain inspiration from each other. Collective reflections have been conducted in the whole process. In-service and communicative support, along with reflection within the team of teachers, has important impacts on educational practices with young children [26]. For participating researchers/teacher educators, they not only gain deeper knowledge about cultural sustainability to support kindergartens' projects but also gain opportunities to connect theories and practices and at the same time do research. Researchers have decided to write and publish articles in academic journals on this project from different perspectives. This article is one of them. The ECE teacher education programs of the two participating universities can benefit from this close collaboration among teacher education, research and the field.

Besides, a new cycle of the neighbourhood project on cultural sustainability initiated by the university teacher educators/researchers started in early 2021 with a focus on closer research collaboration among kindergartens and university teacher educators/researchers.

6.3. Teachers Need Education & Training to Promote ECEfS

Borg et al. point out that, "there is a significant and positive relationship between young children's learning about sustainability and the involvement of teachers and guardians in sustainability-related discussions and activities" [27] (p. 169). Findings of this article support this statement. This research has also found that kindergarten teachers need education and training so that they can purposely and systematically carry out activities on sustainability. The five-year collaboration with the participating kindergartens has indicated that there is no systematic and purposeful design and implementation of projects/activities that practise and promote sustainability in dimensions other than an environmental one, which is in line with the finding of Kultti et al. [8] and is a reason for the initiation of the project this article reports. If teachers have received education on ECEfS, the possibilities to plan and implement related projects/activities may be increased.

7. Final Remark

Bascopé et al. [28] (p. 13) suggest that "action to promote sustainability in ECE is needed and that acting to adequately share ideas and examples is an important issue". We agree with their suggestions. This is also one reason for us to share our practices and experiences. Our example is not a perfect one but, in many ways, it is a successful one and can be of some inspiration for ECEfS, especially how cross-cultural CoP of multi-partners can work together to practise and promote ECEfS, which should be encouraged and promoted. The projects conduced to foster cultural sustainability in this study corroborate Axelsson et al.'s classification, namely material, immaterial, and emerging dimensions of cultural sustainability with quite a number of kindergartens incorporating emerging dimensions as a result of the outbreak of COVID-19. More importantly, the different projects have achieved the set goals with all participants gaining knowledge of their neighbourhood and, thus, the sense of identity, belonging, and pride. Furthermore, engagement in cultural activities help children gain sense of belonging, self-esteem, problem-solving and social

skills while teachers gained professional development and parents some parenting skills. Moreover, while preserving the traditions, histories, and historical buildings, participants of the projects are influencing the existing cutlures and creating new cultures.

In the future, when designing projects to practise and promote sustainability, we suggest considering how kindergartens and neighbourhoods become each other's resource for education and practices of sustainability. It is also important to consider how to integrate all dimensions of sustainability in one project.

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Informed Consent Statement: Oral consent was obtained from all participating kindergartens in the research project.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to ethical restrictions of identification.

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Pedagogical Translanguaging to Create Sustainable Minority Language Practices in Kindergarten

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Abstract: The coastal areas of Finnmark have deep Sámi roots. With the Norwegian assimilation policy—Norwegianization—the transition to the Norwegian language has been extensive here, placing the region outside Sámi core areas. Nevertheless, indigenous Sea Sámi identity still exists, and language vitalization and raising awareness of culture are shown in Sámi institution building. Within these frames, kindergarten teachers with Sámi backgrounds work to strengthen their local Sámi language and culture in a Sámi department of a kindergarten outside the core Sámi areas. This article aims to shed light on how the use of their bilingual resources in pedagogical translanguaging practices can build sustainable language practices for North Sámi. With children and adults, we explored how culturally aware, situated outdoors activities, such as building a campfire and gathering berries, encouraged children's use of North Sámi. Both children and adults recorded these activities with GoPro cameras. The material was transcribed and analyzed using Conversation Analysis and translanguaging. For this article, I chose three episodes in which kindergarten teachers used their bilingual language register to interact with children in different pedagogical practices to give children input in North Sámi. Pedagogical translanguaging with young language learners in an emergent bilingual situation could help strengthen North Sámi language and culture outside Sámi core areas.

Keywords: sustainable language practices; translanguaging; indigenous language vitalization

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1. Introduction

Sustainability is an important issue for minoritized, indigenous, and threatened languages, including the three Sámi languages still spoken in Norway [1]. Sápmi is North Sámi for the nation and territory covering the northern and central parts of Norway, Sweden and Finland, as well as the Kola peninsula of northwestern Russia. Along with other ethnic groups, Sámi peoples have populated these regions for thousands of years. Most of the Sámi live in Norway and are acknowledged as an indigenous people. There is no reliable or updated demographic data on the Sámi, but estimates on Ethnologue suggest that 40,000 Sámi live in Norway. Coastal areas of Finnmark have deep Sea Sámi and Highland Sámi roots; however, external factors threaten the sustainability of these groups' language [2]. Via the national policy and process of Norwegianization, the transition to Norwegian language as the family language has been massive. This defines the community in which this kindergarten research took place as being outside Sámi core areas. Norwegian culture and language are all encompassing and part of everybody and every practice. It is a common experience in our region to be both Sámi and Norwegian, an experience I share. For many, this also imposes the feeling of being neither/nor. Despite the operation of colonial forces, the indigenous Sea Sámi identity prevails, and the strength of the people, vitalization of language and cultural awareness raising are seen in local Sámi institution building, such as the Sea Sámi Centre and Sámi kindergartens. New education systems are working to sustain Sámi language and reverse some of the effects of Norwegianization.

This article aims to shed light on how kindergarten teachers with Sámi backgrounds work inside these frames to strengthen Sámi language and culture in a Sámi department

of a kindergarten outside Sámi core areas. I present an analysis of how they use their multilingual resources in different translanguaging practices to create sustainable language practices in interactions. Together with the children and adults of the kindergarten, we explored using technology, such as GoPro cameras, to encourage children's use of Sámi words, and employed culturally aware, situated activities [3], such as building a campfire and gathering berries. Transcriptions are analyzed using Conversation Analysis (CA) [4,5] and the concept of translanguaging [6–8], which is connected to the sustainability of indigenous languages [9].

Translanguaging is a concept/term that has evolved and is evolving both within educational use and in the study of more spontaneous speech. In-depth discussions and historics can be found in García and Wei [6], Wei [7], Cenoz and Gorter [9,10], and Bastardas-Boada [11]. Auer [12] discusses the usefulness of the term compared with codeswitching. Departing from more rigid understandings of named languages and monolingual perspectives in earlier codeswitching, such as that put forward by Myers-Scotton [13,14], a more multilingual view of codeswitching practices has evolved, represented by such concepts as Gafarangas' "talk in two languages" [15–17]. Translanguaging takes up post-colonial perspectives on language [18–20] and local practice as a third space [21,22]. In this article, I focus on translanguaging as a pedagogical practice in indigenous settings, in line with Cen Williams' *trasueithu* [23], which was developed for pedagogical practices in a Welsh school [6]. For this article, I find Li Wei's definition of translanguaging space interesting, highlighting Bhaba's cultural translation and the creation of a social space: "The act of translanguaging then is transformative in nature; it creates a social space for the multilingual language user by bringing together different dimensions of their personal history, experience and environment, their attitude, belief and ideology, their cognitive and physical capacity into on coordinated and meaningful performance, and making it into a lived experience" [8].

Translanguaging is visible as practices of codeswitching and language alternation. It is the use of more than one language in interaction, the use of all the participants' linguistic resources, and the local treatment of switching languages as less important than the interaction and the meaning making. It is easy to understand arguments on how minority languages are threatened by translanguaging or even bilingualism (all contact linguists remember Manx), as discussed from different angles in "Dangerous bilingualism" [24]. To learn a language, it is important to have enough input and enough arenas to use the language. However, the world does not always treat everybody the same way, and it is vital to work within the frames that are given (felt or real)—the social and community frames [25]. Work for minority language vitality [26–31] has pointed to language baths and nests, and the well-known idea of the "one speaker, one language" theory. Keskitalo, Määttä and Uusiautti [25] give a short overview of language immersion models, together with their model, "the language immersion tepee for the Sámi languages" [25,32], and Sámi language learning in school and daycare (kindergarten). They conclude by highlighting "flexible bilingualism" [33] as a useful strategy, and it is a valid conclusion when they also use more pragmatic approaches where language immersion is one of the means, but at the same time, note that "[f]lexible bilingualism emphasizes the overlapping of languages and language fluidity and movement, rather than enforcing separation of languages for learning and teaching. As participants engage in flexible bilingualism, the boundaries between languages become permeable" [25]. This is in line with translanguaging theories and gestures toward a postcolonial view of named languages [18].

Translanguaging sprang from threatened minority languages in educational settings, and the Welsh experiences seem familiar to Sámi outside core areas. Another minority situation that is similar in Europe is that of the Basque language. From the Basque situation, Cenoz and Gorter have developed a model for translanguaging as language sustainability in a minority context [9]. However, society does not easily accept combining elements of different languages [9]. The situation in my material is that of emergent bilingualism, and it is natural to be using resources from different languages, such as single words or expres-

sions they master and are not in their target language or structures from their strongest language in a weaker one, such as using compound verb structure from Norwegian in Sámi instead of conjugating according to Sámi grammar. This all has explanation models within codeswitching, but the term *translanguaging* allows a greater focus on the practice. Cenoz and Gorter [9] propose five "guiding principles for sustainable translanguaging for regional minority languages." The first principle is designing functional breathing spaces for using the minority language. This principle should ideally be monolingual and serve as sort of a protection. From Joshua Fishman, Cenoz & Gorter describes this as follows: "the idea is that the minority language can be used freely and without the threat of the majority language; it can "breathe", in a space where only the minority [language] is spoken. Such a space could be a village, an area, a classroom or a school" [9]. Cenoz and Gorter [9] do not propose a rigid system like language immersion, and they meet practices put forward by, for example, García et al. [6,34] and Cummins [35]: "Even though this principle can be seen as linked to traditional practices of language isolation, it differs from these practices because schoolchildren will have breathing spaces along with pedagogical practices based on translanguaging as can be seen in the rest of the guiding principles" [9]. The second principle is developing the need to use minority language through translanguaging. If information or interesting activities demand knowledge of the minority language, then people will feel a need to use it. Cen Williams' pedagogical use of translanguaging can be said to be part of this. The third principle is using emergent multilinguals' language resources to reinforce all languages by developing metalinguistic awareness. Their fourth principle for sustainable translanguaging is enhancing language awareness; here, this means being aware of social status, functions and language practices, and the when and where of using the different languages [9]. The fifth and final principle is considering both the pedagogical planned translanguaging and the participants' spontaneous translingual practices. Although the children seem to have some understanding of their identity as Sámi and Norwegian and they understand Sámi (to different extents), they still do not use Sámi spontaneously. In my material, the adults set themselves up as spontaneous translingual role models, where Sámi may be used as an integral element even though Norwegian is the dominant language.

Knowing the community and local practices is a basis for describing translanguaging. A monolingual situation has been an ideal, but like many ideals, it may feel unobtainable to some communities, and for Sámi kindergartens outside Sámi core areas. That is where translanguaging comes in as a tool for language sustainability. Otheguy, García and Reid [34] argue for how translanguaging can be a "smoother conceptual path" [34] than ideal traditional approaches like immersion in "the goal of protecting minoritized communities, their languages, and their learners and schools" [34]. Even when the kindergarten is Sámi, most language and Norwegianization is so present that children and adults engage in different kinds of spontaneous translanguaging [36–39]. There are only a few studies in Sámi and Norwegian translanguaging. My Ph.D. thesis on language alternation in role play in kindergarten [36] shows spontaneous or natural translanguaging; however, I used terms like codeswitching and language alternation. Two master's theses also highlight different kinds of translanguaging in Sámi/Norwegian—Vilde Kvammen's thesis about informal linguistic practices on Facebook, which uses the term *codeswitching* to describe the use of both North Sámi and Norwegian [40], and Kari Marlene Mulder's science classroom case study of pupils' use of North Sámi and Norwegian in conversations about scientific terms, using the term *translanguaging* to describe the practices [41].

The Sámi kindergartens in Norwegianized areas could be defined as a third space, a place where it is uncertain what the outcome will be; it is even unclear for the people in it what it is right now. Many stereotypes of Norwegian and Sámi will not fit—not linguistically or culturally, not in social interactions or when evoking identity. Being forced, or immerged, into some other identity or expectations may not be the right path. As an alternative, third space and translanguaging are discussed in [22]. Although Bhabha's postcolonial term could also be used to describe this kindergarten, it could be limiting in

that a third space is also liminal [42]. One highly important issue in minority language sustainability and (re)vitalization is how to sustain a language without fully mastering it. As I find in the translanguaging practices and will show in this article, this issue need not be framed as a shortcoming but instead can be interpreted as representing the strength it takes to find a way to sustain an indigenous minority language. Pennycook points to this dilemma: "Here [in the fiction that it is possible to count and preserve languages] the language ecologist orientation towards a liberal concept of diversity encounters its contradictory nemesis through a notion of language purity, since the preservationist and langue-realist orientation of language ecology may all too easily exclude the possibility of change, borrowing, hybridity and difference. Yet, if we are to do more than preserve the rare examples of standardized codes, we have to work with the very non-species-like fuzziness, changes, hybridities and peculiarities of languages" [19].

2. Materials and Methods

The material used in this article comprises transcripts from films by researchers, teachers and children taken during one fine outdoors day in kindergarten. The fieldwork is part of a collaborative project between the kindergarten and BARNkunne/KINDknow research center (HVL and UiT) supported by the Norwegian Research Council and Finnmark County. The aim of the larger project has been to support Sámi language and culture in the Sámi kindergarten and to build a child language corpus. We use participatory design, and the project has developed into a different subproject since December 2018, when we first started out. The leader of the kindergarten and the teachers wanted to make a "Porsanger model" for Sámi language and culture vitalization outside Sámi core areas. As I analyze the material through sociolinguistic and bilingualism lenses, I think they may be right: They already have a model—they have a praxis [19]. Their model shares the core ideas of the original *trasueithu* of Cen Williams [6,23], adapted to kindergarten practices and to their local indigenous culture. This article is a beginning to describe and consolidate their ideas and practices.

I have chosen examples from three episodes. Translanguaging can be described both as pedagogical/planned and spontaneous/natural. In the context of a kindergarten language stimulation/language milieu in a holistic approach, it is not always clear what is planned and what is spontaneous; the aim is to create a rich language environment. In this analysis, the aim is clearly to use as much Sámi as possible, but at the same time, relations, understanding, learning and interaction are at the forefront in any kindergarten practice. In the three episodes I use here to describe translanguaging practices, there are three different teachers (two teachers and one assistant) with different language backgrounds. The similarity is in how they use their language resources to convey Sámi and interactional practices.

The kindergarten has three departments, one designated Sámi with North Sámi–speaking staff and working according to plans for Sámi kindergartens. There are four adults, where two have an early childhood education (ECE) teacher background, one has relevant education from the high school level, and one completed her certificate of apprenticeship during the project. Jan Tommy, Anja, and Lill are all from a core Sámi area, whereas Anette is local. Only one of them has North Sámi as a first language—and only language up to school age (seven years old). The other three have varying experiences of both active and passive knowledge of North Sámi during their early years and up to the present. After discussing this with the teachers, we decided to keep their real names to acknowledge their work. The children also come from varying language backgrounds, some from monolingual Norwegian, some from a bilingual Norwegian/North Sámi, and some from Finnish/Norwegian families. All the children are also in some contact with North Sámi outside kindergarten, but for most, kindergarten is their main input in North Sámi. They speak little Sámi but seem to understand, and the teacher reports that they understand the daily routines in Sámi. The children speaking in the episodes I chose were

from the preschool group. They were between four and five years old when we recorded. I have given them pseudonyms for anonymity.

For this article, I chose three episodes with different person constellations. The longest film, *Circle Time*, is 8.51 min. Participants are the ECE teachers Jan Tommy and Anette and the children of the preschool group—Piera, Inga, Morten, Henrik, Anna, Johan and Julie. The researchers, Carola and Anne, are sitting in the heather outside the circle of children. The main footage here is filmed by Anne with a handheld camera. *Camera as Language Teacher* is 1.10 min, filmed with a GoPro camera held by Lill, and after a while, Piera. Audible in the clip is teacher assistant Lill and the preschool children Piera and Morten. The researchers are not present. The third clip is *Lighting Fire, Children's Perspective*, 2.06 min, filmed with a GoPro worn by Biret. However, the transcription has been enhanced by a video we call *Lighting Fire, Adult Perspective*, 2.16 min, filmed with Anne's handheld camera. The ECE teachers Jan Tommy and Anette are present, together with the children Johan, Biret and Anna. Other children and adults are present or moving around during the episode. Researcher Myrstad is present filming; researcher Kleemann sits with some children a bit further away, within clear hearing range.

CA developed out of the work of Harvey Sacks. It examines languages as social action and takes this action to be systematically ordered and organized [43–45]. In this tradition, the method, organization, and analysis in this study follow the seminal article by Sacks, Schlegoff, and Jefferson titled "A Simplest Systematics for the Organization of Turn-Taking for Conversation" [4]. This article argues that the material is important, requiring accurate transcriptions of "naturally occurring interactions." The focus is on speech production and turn-taking organization as a system [4,44] with turn constructional and turn allocation component. These elements offer several choices in taking and allocating turns, involving "techniques" either to give the other participant(s) an opportunity to take a turn or to take a self-selected turn.

Auer (1984) is an early proponent of using principles of CA to analyze bilingualism and bilingual language practice, and more recent research has followed some of these principles [15,46] of "a model for turn-taking in conversation [. . .] characterized as locally managed, party administered, interactionally controlled, and sensitive to recipient design" [4]. In this view and method of analysis, bilingual conversation is basically conversation, and the use of more than one language is another communicative code [47] or register variation [48]—which may also be described as translanguaging [6,7,34].

Transcriptions were made by Edit and the author in collaboration. The North Sámi parts were transcribed by the author with some advice and proofreading from proficient North Sámi speakers. Any errors are the author's. The English translation is also the author's. For this article, the original transcription codes were adapted and simplified by the author to enhance readability. I use orthographic punctuation, reproducing an exclamation or statement with exclamation sign or period. Nonverbal signs, such as laughing and change of tone of voice, are indicated in brackets, as in "(laughing)" or "(teaching tone)." Utterances are reproduced in accordance with the original transcription: Utterances in Norwegian are reproduced close to speech, that is, using child language and local varieties. Utterances in North Sámi are reproduced with standard orthography. These choices have been made to ensure transliterator readability. North Sámi is in bold to ease readability and understanding of language alternation in the English translation.

Ethics are important when interacting with others. This project broached special considerations on ethics and GoPro cameras, indigenous minorities and the Sámi, children in an institution/situation they have not chosen independently, and adults in their workplace. Ethics and GoPro is a new and relatively small field [49–52]. It can be discussed in terms of two areas—procedural and practical ethics [49]. The project was vetted through Norwegian Centre for Research Data (NSD) procedures and approved (assessment reference 749891) and assessed from data plans at UiT. Practical ethics go beyond these procedures, and there are instances where one could need less rigid systems. The children and adults were informed that they had the power to decide whether they wanted to be filmed or not or if

they wanted to film/use GoPro cameras. We also talked through and practiced taking off cameras when the children no longer wanted to use them or had to go to the bathroom. We worked with routines to ask permission to film other children. One of the affordances of using sturdy and robust action cameras is that we could shift our focus from handling and being careful with equipment to ethics and considerations for others. Researcher Carola Kleemann viewed and discussed the videos this article is based on with staff and parents one month after they were filmed, and all expressed positivity toward the content.

Too often, the issue of empowering the "objects" of research has been ignored in research on the Sámi [53–55], on children [56,57], and probably in general when we look at elitism and research [58]. I modeled my research methods on "the least adult role" [56] (p. 47) to create distance from the adult role of teacher or assistant in kindergarten. This means that I was not normative in my linguistic choices, and I tried to be less authoritative and avoid comforting or mediating in conflicts. I was open with the children on the aims and research interests I had. Including the adults' participatory design has been important to me. I wanted us to do this project together, building trust and a safe environment for sharing ideas and practices. As part of that, I shared my Sámi ethnicity and personal story with the adults, building a relationship and trust that I would not do research *on* but *with* them. The personal story was inspired by a question I was asked while doing Ph.D. fieldwork in a Sámi kindergarten: One of the adults asked, "Are you Sámi?" At first, I did not know what to answer; I had no "yes" or "no" answer to that. I told them that I am Sámi, yes, and I am also not just Sámi. I speak some North Sámi, but I had to learn it as an adult, not as a family language.

3. Results: Spontaneous, Natural, Pedagogical, and Intended Translanguaging Kindergarten Practices

In this section, I give examples of how the teachers used translanguaging throughout certain episodes in a way that may be read as sustainable translanguaging. As they make room—a space—for Sámi, their translanguaging allows for metalinguistic awareness, as well as language awareness. Translanguaging may even help overcome their felt shortcomings in their language, develop both spontaneous/natural and pedagogical/planned translanguaging as examples, and create room for emerging bilingualism in North Sámi and Norwegian.

3.1. Camera as Language Teacher

Lill uses the camera to create a situation and reason to use Sámi. She uses both languages in a pedagogical way to explain to the children and to model what they should do and say. Acting as a role model for translanguaging and for creating a monolingual Sámi language arena, Lill finds a functional solution to creating a breathing space for Sámi. The first example (Table 1) is for establishing the situation.

Table 1. *Camera as Language Teacher*, utterances 1–6.

No.	Name	Transcription	Translation
1	Lill	I lag åssåhjelper dere hverandre. Se her. Så gjør vi sånn her. **Gea**.	Together and then you help each other. Look. This is how we do it. **Look**.
2	Lill	**Mii dát lea?**	**What is that?**
3	Morten	D er kopp	That is a cup.
4	Lill	**Sámegillii: koh** . . .	**In Sámi: cu . . .**
5	Morten	**Kohppai.**	**Cup.**
6	Lill	**Kohppa. Buorre!**	**Cup. Good!**

Lill starts in Norwegian, explaining exactly what they should do and wanting them to work together on this mission (utterance 1). She then switches to Sámi. This is codeswitch-

ing between Norwegian and Sámi with a pedagogical purpose; here, the codeswitching takes place between sentences. Pedagogical translanguaging is shown in how Lill continues using Sámi to create a breathing space, to explicitly create an opportunity to use Sámi, giving the children the tools with questions and short answers and coaching them step by step to answer her questions independently in Sámi. She uses both languages, but right here she has a mission, and she corrects Morten when he answers in Norwegian, showing that he understands the communicative meaning of her utterance. The correction does not involve saying he is wrong but expanding into using Sámi. After she has switched to Sámi, she sticks to Sámi for a while, providing the children a model of how they can use the camera and how to speak. Morten shows that he is bilingual in that he understands Sámi, although he answers in Norwegian (utterance 3). Lill expands in utterance 4 by explicitly demanding the Sámi language, and in utterance 5, Morten produces a minimal response with one word repeating and finishing what Lill starts. This is a correct response in the situation with her teaching tone. Lill acknowledges and praises his achievement. In utterances 7 through 11, we see how Lill now has created a larger breathing space for Sámi, and there is an exchange in Sámi only in Table 2. The advances may seem small, from repeating the target word in Sámi to answering direct questions, but they are advances and exchanges that occur purely in the minority language.

Table 2. *Camera as Language Teacher*, utterances 7–11.

No.	Name	Transcription	Translation
7	Lill	**Naba . . . naba . . . Mii dát lea? Diet lea muorra.**	**What about . . . what about . . . What is that? This one** (The precise meaning in Sámi is "this one that is closer to me than you"; she is touching the tree) **is a tree.**
8	Piera	**Muorra.**	**Tree.**
9	Morten	**Muorra.**	**Tree.**
10	Lill	**Naba duot? Mii lea? Ná dát lea sámegillii?**	**What about that over there? What is it? But what is it in Sámi?**
11	Morten/Piera?	**Jo■ai.**	**Cranberries.**

The pedagogues work with both culture and language to create the breathing spaces. Lill is perhaps the most explicit in using the GoPro camera. The pedagogical translanguaging is used for modeling and instruction. When she has to explain, she switches back to Norwegian, like in Table 3, utterance 12, in a translanguaging practice where understanding is important in more complex sentences and meaning making.

Table 3. *Camera as Language Teacher*, utterance 12.

No.	Name	Transcription	Translation
12	Lill	**Buorre!** Så tar dåkker den åssåg går dåkker å filme d dåkker finner åssåg sir dåkker ka d e. Hjelper dere hverandre.	**Good!** Then you take this and then you go filming what you find and then you say what it is. You should help each other.

The two boys, Morten and Piera, take off with the camera, searching the heather for berries. In the background (Table 4), we hear Lill explaining in Norwegian what to film, and that it could be different things, as she has already shown them. Although they hear her, they want to do it their way; they are only interested in only. We see how they go from simply repeating "cranberries" in utterances 11 and 13 to taking control of what they want to do (utterances 15 and 16), and finally, using Sámi independently when they find cranberries (utterances 17 and 18).

Table 4. *Camera as Language Teacher*, utterance 13–20.

No.	Name	Transcription	Translation
13	Morten/Piera	**Jo■ai.**	**Cranberries.**
14	Lill	(bakgrunn, uklart) så hjelper dere. Så finner dere (bakgrunn, uklart)	(background, not clear) then you help each other. Then you find (background, not clear)
15	Piera	Vi, vi vil bare finne bær.	We, we will just find berries.
16	Morten	Å å åsså viss vi finner litt . . .	A a and then if we find some . . .
17	Piera	(tydelig) **Jo■ai.**	(Clear) **Cranberries**.
18	Morten	(tydelig) **Jo■ai.**	(Clear) **Cranberries**.
19	Piera	Se her! Oi nu slutta dn. Oi no filma, no blei de filma!	Look here! Wow, now it stopped. Wow no filmed, now it was filmed!
20	Lill	**Juo**.	**Yes**.

Here, we find children's agency in doing something they have a model for, but at the same time, can decide for themselves. They continue Lill's teaching tone and pronounce the word for cranberries very clearly, both saying it aloud. Lill is an assistant, but she is intuitively using methods of repeating, giving the children time to try, encouraging, and serving as a role model. Maybe this is what Sámi pedagogy is also about, building on traditional ways of transferring knowledge and interacting between adults and children. It is clearly a long time before the children will use extensive spontaneous translanguaging or codeswitching/talk in two languages. However, using the camera as a language teacher is one way of making spaces for using the minority language.

Lill responds to the children's initiatives in Norwegian, but at the same time, she tries to create a place where Sámi should be present. She encourages their actions; she adjusts her questions so that they will not be set up to be corrected. In utterance 2, she just asks and perhaps expects them to use Sámi right away. The children also adhere and show that they know the target word when they respond to her direct questions between utterances 7 and 10 in Sámi, utterances 8 and 9 as repetitions, and utterances 11 and 12. Accepting translanguaging practices, even when Sámi is the target, allows for an example for informal interaction to use as much Sámi as possible. These informal skills are not necessarily met in any social interaction for the children as they will be relatively monolingual Norwegian. The intense contact—a term from Cenoz and Gorter [9] referring to the language situation for Basque and Welsh—between Sámi and Norwegian has almost erased Sámi language in coastal areas; every little step to reclaim the language is moving forward.

3.2. Building a Campfire

In this episode, the teachers Jan Tommy and Anette are present with the five-year-old twins Johan and Anna; two-year-old Biret also comes, and Julie sits on a bench a bit further away, watching what goes on when they light the fire. Both Anette and Jan Tommy are trained ECE teachers and use Sámi as a family language, but not extensively. They are both a bit insecure about using Sámi in spontaneous conversation, which can be seen in their direct questions, but they use Sámi when they can. Activities around the fireplace are common in kindergartens in the north of Norway, and for many, it is a Sámi activity. This can be a Sámi breathing space, but it is also a spontaneous event, and the use of Sámi is not fixed or prepared for every utterance. Nevertheless, the teachers do use Sámi without flagging it. This episode shows how they use short, frequently occurring phrases in Sámi but largely speak Norwegian. The simple phrases are often imperatives: "come here," "look at that," and "wait a little." These are phrases used frequently in kindergarten settings and in child-directed speech; using them in both Sámi and Norwegian creates a little variation in speech, and the speech acts can be said to be both in keeping with

the imperatives used and the codeswitching of selecting Sámi. Repetitions and learning language like this represent emerging bilingualism.

Anette often repeats and confirms utterances in Sámi and Norwegian, supported by body language and other situational clues, while coaching Johan in lighting the fire. This evident in the four utterances in Table 5 from *Lighting the Fire*.

Table 5. *Lighting the Fire*, utterances 1, 8, 13, and 38.

No.	Name	Transcription	Translation
1	Anette	Du må komme litt nærmere. **Gea dát!**	You have to come a little closer. **Look there!**
8	Anette	**Boađe deike.** Så tar du den. **Gea dát! Åh!** (laughing)	**Come over here.** Then you take his. **Look at that!** Oh! (laughing)
13	Anette	Og så ta forsiktig dit, da slukke den ikke. Åkei. **Oktavel!**	And take it carefully over there, then it will not extinguish. Ok. **Once more!**
38	Anette	**Det lea.** Å så slipper du den.	**That's it.** And then you let it go.

While Johan responds in Norwegian only, Anette is codeswitching in a manner that is familiar—repeating in a new language when the addressee does not respond, as when she coaches him to come closer. Jan Tommy and Anette also work together to expand the use of Sámi, mostly with the short utterances that they know well and use often, like in Table 6. Many everyday expressions are well known to any kindergartener, like being told to wait.

Table 6. *Lighting the Fire*, utterances 22–24.

No.	Name	Transcription	Translation
22	Jan Tommy	**Det vuorde veaha.**	**Then you wait a little.**
23	Johan	Kanskje litt mere.	Maybe a little more.
24	Anette	**Det vourde veaha.** Neida.	**Then you wait a little.** No.

The repetitions of each other's utterances in Sámi confirms the situation as Sámi, and it gives the children some input. This way of using the resources they have is better explained as translanguaging, where an understanding of the educational and social context is an important part of using the entire register. One integral part of their use of Sámi is how they often seek affirmation from each other on pronunciation and semantics. This can be seen in Table 7 when Anette asks the student, who is studying at the Sámi University College to become a kindergarten teacher, if "beassi" is birch bark.

In this excerpt, Anette asks about a word that she used earlier correctly and with confidence. With other adults, and perhaps especially with the student who has Sámi as a home language and comes from a Sámi core area, she shows more insecurity. However, this develops into something more when the student volunteers a linguistic context to "beassi" with "loggut beassi" (English: "to tear birch bark") in utterance 41, and in that way, expanding the learning situation. Anette seizes the opportunity and asks what this specialized term is, and she keeps the exchange in Sámi: "Mii leat 'loggut'?" ("What is 'to tear off'?" Norwegian: "Hva er 'flekke'?"). This provides a space to learn a specialized expression, an exchange in Sámi that comprises enhancing language awareness, as well as metalinguistic awareness, in both the group of children and the adults. The student continues the exchange with the other adult in Sámi, explaining with near synonyms or more well-known and general terms. Norwegian has a specialized term for this as well, with "flekke," but the student chooses to explain in Sámi.

Table 7. *Lighting the Fire*, utterances 39–46.

No.	Name	Transcription	Translation
39	Anette	Se, så skal dåkker rive næver. Va d **beassi**?	Look, then you should tear birch bark. Was it **birch bark**?
40	Anette	De va næver ijænn.	That was birch bark again.
41	Student	**Loggut beassi.**	**To tear birch bark off.**
42	Anette	Åssåa hiver dåkker never på.	And then you toss birch bark onto.
43	Anette	**Mii leat "loggut"?**	**What is "to tear off"?**
44	Student	**Ná gaikut (uhørbart) loggai go sáhtta beassi muoras**	**Well, to tear (inaudible) One tore off when one is to take birch bark from trees.**
45	Anette	Åja.	Oh, yes.
46	Anna	Hei, du kan du si (Tydelig uttalt) bæ:ver?	Hey, can you say (Distinctly pronounced) beaver?

An interesting metalinguistic incident shows how the praxis develops metalinguistic awareness when Anna is playing with Norwegian "never" and Sámi "beassi" and comes up with the word "bever," meaning "beaver" in English. The short episode in Table 8 (25 s) occurs a little while before the *Lighting the Fire* excerpt and shows how Anna plays with the teaching tone to spread her interpretation—and power of definition—to other children in utterance 46 above.

Table 8. Beaver is in Fact a Stone, utterances 1–7.

No.	Name	Transcription	Translation
1	Anna	(Tydelig uttalt) Bæver.	(Distinctly pronounced) Beaver.
2	Anette	(leende) Bæver. (tydelig uttalt) **Beassi**.	(Laughing) Beaver. (distinctly pronounced) **Birch bark.**
3	Anna & Johan	(tydelig uttalt) Bæver.	(distinctly pronounced) Beaver.
4	Anna	(ler)	(laughing)
5	Anette	**Ja mii leat** bæver**? Dat lea** (tydelig uttalt) **ealli.** D e et (tydelig uttalt) dyr.	**And what is beaver? It is** (distinctly pronounced) **an animal.** It is (distinctly pronounced) an animal.
6	Anna	Bæver e faktisk litt . . . e faktisk en stein.	Beaver is in fact some . . . is in fact a stone.
7	Anette	Stein **lea** (tydelig uttalt) **geađgi.**	Stone **is** (distinctly pronounced) **stone.**

Playing with the sounds, with the words and with semantics, Anna is seizing power over definition. Although Anette is correcting her by repeating the target (Sámi "beassi") and translating or providing Sámi vocabulary ("geađgi" for "stone") and semantics (beaver as an animal), with the utterance repeated in both languages, they are still in a playful and informal setting. They work and play to "develop connections between cognates in different languages so as to develop vocabulary in the different languages" [9,59]. Anna's phonological awareness and metalinguistic playfulness are inspired by the translanguaging in kindergarten, like her chanting of "muorjje" in Table 12 (*Planned and spontaneous circle time*, utterance 41 below).

3.3. Planned and Spontaneous Circle Time

The *Circle Time* video is a total of about 8 min long and is a planned teaching session. Circle time is a planned teaching session in a holistic kindergarten tradition. To prepare

this, Jan Tommy has laminated photos of the children picking berries last year and photos illustrating the different kinds of berries and heather. The circle time is planned to end in a song they have practiced. Although a teaching tone is often prominent, it is also moving toward wondering and not giving exact answers [60]. In Table 9, Jan Tommy starts out in a teaching tone [61] in his prepared theme on greetings (e.g., utterances 5, 7, and 12), and the berry forest (e.g., utterances 14, 16, and 22), before a question/theory from Julie (utterance 70) sparks more exploration and wondering. He has prepared material and questions, and he wants to start off defining this as a Sámi space by encouraging the children to say something he knows they can say in Sámi.

Table 9. *Planned and spontaneous circle time*, utterances 5–14.

No.	Name	Transcription	Translation
5	Jan Tommy	**Ok, sáhttat mii lohkat buorre iđit vel bourre beaivvi dál?**	**Ok, should we say good morning or good day now?**
6	Anna	Hehehe (uhørbart) plukke (uhørbart)	Hahaha (inaudible) pick (inaudible)
7	Henrik	**Buorre beaivvi.**	**Good day.**
8	Piera	**Buorre beavvi.**	**Good day.**
9	Jan Tommy	Ja. **Ná buorre iđit leat** god morgen **ja buorre beaivvi leat** god dag. **Maid mii áiggut lohkat?**	Yes. **Well, good morning is** good morning **and good day is** good day. **What should we say?**
10	Julie	**Buorre iđit.** (Hviskende) God morgen	**Good morning.** (Whispering) Good morning.
11	Anna	(uhørbart)	(inaudible)
12	Jan Tommy	**Leat go** morgen **dál**?	**Is it** morning **now?**
13	Inga	Auue!	Ouch!
14	Jan Tommy	**Leat buorre beaivvi odne dál. Ná mii leat dáppe muorjemeahcis. Muorjemeahcci.** E d bærskog? Ja	**It is good day today now. Well we are now in the berryforest. Berryforest.** Is it berryforest? Yes.

Jan Tommy uses Sámi to ask questions and to draw attention to the situation as a breathing space for the Sámi language. He wants the children not only to use phrases for greeting but also to understand the meaning and be able to choose the correct form. When we did the recording, it was about 10 in the morning, so it could be open for debate whether it was morning or day. Usually, *buorre iđit* is used when the children come to kindergarten, greeting both children and parents. The traditional answer is *Ipmil atti* ("if God gives" or "may God give"), but to many kindergartens, this feels archaic and too religious, so many use the modern, Norwegianized way of answering with the same phrase: *buorre iđit* [38]. Henrik and Piera answer in Sámi (utterance 7 and 8) and give the answer the teacher wants, but Jan Tommy wants everybody to answer, so he continues asking. Julie seems to understand the first answer as wrong, so she provides the other option, first in Sámi, then repeating in Norwegian when she gets no response from the teacher. Julie's response shows that she understands both the Sámi and Norwegian phrases, with the repetition uttered to ensure that she is heard because she does not get immediate response from Jan Tommy. Jan Tommy then (utterance 12) uses the Norwegian "morgen" in his otherwise Sámi utterance, perhaps checking whether the children understand meaning of "iđit" separated from the phrase. To ensure understanding, to explain the Sámi word, he uses Norwegian, translanguaging with a pedagogical purpose.

When Jan Tommy asks, using both Sámi and Norwegian, whether it is morning, he seems to have made up his mind already, and he answers his own question in utterance 14. After that, he continues with the theme for circle time, which is berries and where they grow. Although he has prepared learning vocabulary and made material with laminated pictures

of the children picking berries last year, he still grows insecure about using Sámi and seeks support from Anette, as she did in *Lighting the Campfire*. He switches to Norwegian when he goes "off script," again using available resources and his and Anette's preferred shared language. Their modus operandi is translanguaging, supporting each other in both languages.

Using Sámi places them not only in the berry forest but also in Sápmi. When it is clear what "muorjemeahcci" means, Piera repeats in Norwegian what Jan Tommy said in Sámi, as shown in Table 10:

Table 10. *Planned and Spontaneous Circle Time*, utterances 14–15.

No.	Name	Transcription	Translation
14	Jan Tommy	**Leat buorre beaivvi odne dál. Ná mii leat dáppe muorjemeahcis. Muorjemeahcci.** E d bærskog? Ja	**It is good day today now. Well we are now in the berryforest. Berryforest.** Is it berryforest? Yes.
15	Piera	Vi e i bærskogen.	We are in the berryforest.

The meaning and intentional output of Jan Tommy's utterance in Sámi, "Ná mii leat dáppe muorjemeachis" (utterance 14), is repeated by Piera (five years old) in Norwegian, "Vi e i bærskogen," and this gives us a clue that he understands the main (or matrix) structure in Sámi but perhaps needed the confirmation and translation of the specialized content word "muorjemeahcci." Jan Tommy's use of the locative "muorjemeahcis" is the same as Piera's prepositional phrase "i bærskogen" (English: "in the berryforest"). Piera's repetition can be read as a confirmation of understanding and that the translingual practice brings about a context for discovering new words in both languages, a fine situation for developing metalinguistic awareness through translanguaging. Piera is from a bilingual Finnish/Norwegian home, and his linguistic background may enhance his understanding of different forms of words. Both teachers and children are emergent multilinguals, and translanguaging offers a method to use their resources to reinforce all languages.

During the first part of circle time, Jan Tommy speaks Sámi almost exclusively, using Norwegian to check understanding. This is classical pedagogical translanguaging. He accepts any language as an answer, as seen in Table 11, giving room to content over the linguistic variety, but still asking for the key words in Sámi.

Table 11. *Planned and Spontaneous Circle Time*, utterances 16–23.

No.	Name	Transcription	Translation
16	Jan Tommy	**Ja det . . . Makkar, makkar murjjiid leat go don gavnnat dál?**	**And so . . . What kind, what kind of berries have you found now?**
17	Inga	Vi fant vi fant blåbær å e rø bær . . .	We found blueberries and red berries . . .
18	Jan Tommy	**Naha**	**Ok**
19	Inga	. . . tyttebær	. . . cranberries
20	Jan Tommy	**Ja** blåbær **mii leat** blåbær **sámegillii?**	**And** blueberries **what is blueberries in Sámi language?**
21	Piera	**Sarrit**	**Blueberries**
22	Henrik	**Kallit**	**Blueberries** (with 'k' for 's' initially, and 'l' for 'r' in middle consonant)
23	Jan Tommy	**Juo, gea dát leat sarrit oidnat go don Anna? Ja.**	**Yes, look at that. That is blueberries can you see Anna? Yes.**

Inga answers only in Norwegian, with Jan Tommy accepting her use of the Norwegian term for cranberries (utterance 19), and moving on to another Sámi term, wanting the

children to show that they know it. Piera and Henrik give the correct answer, but again it is minimal, one-word response. Moreover, when he continues to hold onto the plan for berries in Table 12, we see that the children are still interested, and they do respond, even in Sámi. In utterance 41, Anna is more playing with the sounds than participating in naming the berries; in utterance 42, Piera shows that he also knows the Sámi word for cranberries, and Julie brings in something new in utterance 43.

Table 12. *Planned and Spontaneous Circle Time*, utterances 40–46.

No.	Name	Transcription	Translation
40	Jan Tommy	**Dán . . . Leat go don gavnnan dán? Leat go don? Jo■aid? Leat go don gavnnat jo■aid? Gii leat gavnnan jo■aid? Leat go don gavnnan j . . .**	**Those . . . Have you found those? Have you? Cranberries. Have you found cranberries? Who has found cranberries? Have you found c . . .**
41	Anna	Jæ, jæ sa bare **muorjje, muorjje, muorj . . . muorjje, muorjje, muorjje . . .**	I, I just said **berry, berry, berr . . . berry, berry, berry . . .**
42	Piera	Jo■ai	Cranberries
43	Julie	**Mu**	**I (genitive/possessive in Sámi: 'mine')**
44	Jan Tommy	**Ná, áiggut geahčča**t**. Nå ja don leat gavnnan.**	**Well let me see. Well, yes, you have found.**
45	Anna	**Mu**	**I**
46	Inga	Æ fant et til Julie åssså.	I found one for Julie too.

The repetitions in utterance 40 are typical of educational situations in kindergarten. Jan Tommy asks the same question in slightly different forms. Anna shows that she knows the word for berry in Sámi and plays with the sound in a kind of chanting manner. Julie uses Sámi to answer Jan Tommy, even in an oblique form, in utterance 43, and Anna echoes her in utterance 45. This is the only example of that in this material. They are eager to declare that they have both found cranberries, and Julie is clearly reading the situation as Sámi. The oblique form is interesting and a bit puzzling because it is a possessive, perhaps containing a meaning something like "my berries." These are minimal responses in Sámi, but they show that the children understand, and they echo the intention/content of the words in the interaction, as in how Julie echoes the meaning "see" below.

The translanguaging practice allows for the kind of passive knowledge of Sámi we can see in Table 13. The teachers can provide a Sámi environment to some extent, with prepared material. Straying from the script demands more spontaneous translanguaging, and more knowledge of Sámi for the participants. Spontaneous translanguaging is harder when the content of the conversation is unexpected. In Table 14, we can follow how Jan Tommy switches from Sámi to Norwegian when they become more philosophical and explore the idea of who plants the wild berries.

Table 13. *Planned and Spontaneous Circle Time*, utterances 51–52.

No.	Name	Transcription	Translation
51	Jan Tommy	**Juo geaččat go don, Inga: Dán leat čáhppesmuorjjit.**	**Yes, can you see, Inga: There are crowberries.**
52	Julie	Nå får du se en som ikke e most der.	Now you can see one that is not crushed there

Table 14. *Planned and Spontaneous Circle Time*, utterances 62–78.

No.	Name	Transcription	Translation
62	Piera	Hei, kor du fant den her?	Hey, where did you find this one?
63	Jan Tommy	**Ja maid don leat gavnnan dál Piera? Gea dát! Mii dát leat?** E d nån som vet? +w Lyng. **Ja sámegillii leat: +w da■as.**	**And what have you found now, Piera? Look at that! What is that?** Does anyone know? Heather. **And in Sámi it is: (slowly and clearly pronounced) heather.**
64	Julie	å å du lyng lyng kan det vokse noen bær på men ikke %u	and and you heather heather it can grow some berries but not
65	Jan Tommy	**Dat leat čáhppesmuorjjida■as, muhtto dat ii leat čáhppesmuorjji dáppe.**	This is crowberryheather, but there are no crowberries on it.
66	Julie	No (engelsk)	No (English)
67	Jan Tommy	(leende) no (engelsk)	(laughing) no (English)
68	Anette	(leende) no (engelsk)	(laughing) no (English)
69	Jan Tommy	(leende) **Manne?** Koffør er det ikke **čáhppesmuorjjit?**	(laughing) **Why?** Why are there no **crowberries?**
70	Julie	Fordi vi/ fordi kanskje d ikke vokser på her åssså at ikke noen planter på. Trur æ.	Because we . . . Because maybe it does not grow here and so no one plants on it. I think/believe.
71	Jan Tommy	(lav tone, bekreftende, avventende) mhm	(low key, confirming, waiting/encouraging) Yes
72	Jan Tommy	Ja, kanskje dæm har glemt å plante **čáhppesmuorjjit.**	Yes, maybe they forgot to plant **crowberries.**
73	Julie	Ja, å bare glemte helt av seg å bare . . . pl . . . gjorde d på alt anna bær.	Yes, and just totally forgot themselves and just . . . pl . . . did it on all the other berries.
74	Jan Tommy	(bekreftende) Mm. Kæm e d som plante bæran, da?	(affirming) Yes. Who plants the berries then?
75	Julie	Vet ikke.	Don't know
76	Henrik	Vet itte.	Don't know. (replaces 'k' with 't')
77	Julie	Pappan min plante mye ting unntatt bare jordbær men ikke andre.	My dad plants a lot of stuff except just strawberries but not other ones.

The context becomes multilingual when Julie uses the English "no." This is clearly not expected in the situation, as shown in how the teachers laugh and repeat it. However, they do not correct the utterance, and thus, accept it. Yet, this raises the question: What in the situation prompts Julie to choose English over Norwegian? Perhaps the understanding of the situation as "not-Norwegian" and that it is accepted to use one's linguistic resources freely. Norwegian has the word "nei," which corresponds with the English "no," but Sámi uses verbs for denial—"ii leat" means something like "it is not" (Latin for "no": "non est"). Julie's use of "no" is accepted, although Jan Tommy laughs a little before repeating and acknowledging the meaning, the communicative intentions, and he continues in Sámi (utterance 69) as a direct response to Julie's utterance. Julie again responds directly to his question in Norwegian (utterance 73). To add to the acceptance of her communicative intention, and perhaps to aid understanding in this spontaneous discourse, Jan Tommy switches to Norwegian in utterance 74.

Using pedagogical translanguaging gives the children an opportunity to speak Norwegian and still be in a Sámi environment. The communicative intention and the meaning making are more important in the interaction than an ideal monolingual immersion. In

Table 15, the exchange between the teacher and the two boys illustrates how repetition and creating an environment where using one's resources is allowed creates a Sámi linguistic environment, which is sustainable in the sense that the teachers can use their emergent bilingualism to aid the children's emergent bilingualism—and none of them are silenced.

Table 15. *Planned and Spontaneous Circle Time*, utterances 82–86.

No.	Name	Transcription	Translation
82	Jan Tommy	**Juo. Muhtto gii plantet čáhppesmuorjjit, hm?**	**Yes. But who plants crowberries, huh?**
83	Piera	Jæi fant en plante med **čáhppesmuorji**.	I found a plant with **crowberries**.
84	Jan Tommy	**Don leat gavnnan da■as ja čáhppesmuorjji.**	**You have found heather and crowberries.**
86	Morten	Jæi fant å en (uklart: lyng) som va (Uklart: krøkebær) på.	I too found a (unclear: heather) which has (unclear: crowberries) on.
85	Jan Tommy	**Hm, juo.**	**Hm, yes.**

4. Discussion: Translanguaging Practices in a Sámi Kindergarten Department

Translanguaging can be described both as pedagogical/planned and spontaneous. For kindergarten language environments in a holistic approach, it is not always clear what is planned and what is spontaneous. The aim is to create a rich language environment. In this analysis, it is clear that the aim is to use as much Sámi as possible, but at the same time, relations, understanding, learning, and interaction are at the forefront in any kindergarten practice. In the examples I use to describe the translanguaging practices, there are three different teachers with different language backgrounds. The similarity among them is in how they use their language resources to convey Sámi and interactional practices.

Dividing translanguaging into pedagogical and spontaneous practices could indicate a relation to codeswitching. Educational or pedagogical translanguaging is used to understand how bilinguals use their languages in targeted codeswitching: They will treat languages as different codes in interactions, for example, switching to the target language to let the pupils/students hear the target language but still allowing the pupils/students to speak their first language. Codeswitching can also be used in translanguaging to explain in two different languages. Treating languages as different codes, the switching of language will have a purpose and a meaning that the recipient is meant to decode; it is meant to create a specific context. The teacher may engage in more involuntary (or relaxed) codeswitching in different kinds of learning contexts, but it must be expected that the recipients will understand the use of more than the target language or their strongest language as meaningful, as marked codeswitching, even if the teacher imitates spontaneous translanguaging. Translanguaging and codeswitching operate at the same time, and while codeswitching is an operationable way to describe different practices, translanguaging explains the mode. Translanguaging is harder to use as an analytical tool. Since García and Wei (2014) coined the term, Wei has developed it into a more practical theory [7]. Importantly, Wei points out, "Translanguaging has never intended to replace code-switching or any other term, although it challenges the code view of language" [7]. In codeswitching research, there has been plenty of challenge to the idea that named languages are codes in all multilingual settings, Wei being one of the researchers with a multilingual lens, Gafaranga [15,16,62] another.

In a bilingual society, there may be different kinds of bilingualism. There are many kinds of bilingualism in Sápmi. I have conducted fieldwork in two types of contexts. In my thesis, I described a balanced bilingualism where the children had bilingualism as a first language. This is not the case in the present material. Some children had bilingual households, but they were very young when we filmed. The children that appear in the examples I present here are bilingual in that they understand a lot of Sámi, but they produce

little, and almost nothing spontaneously. While I could use theories describing unmarked codeswitching, bilingualism as one code, or codeswitching with or without language alternation in my thesis, to some degree every case of language alternation in this material is marked, voluntary, and a switch of codes. Whereas the children in my Ph.D. material could be oblivious to whether they were speaking Sámi or Norwegian in a heated argument, but always adhered to correct grammar, the children in this material seemed to attend to Sámi as "otherness" [15,16], or marked [14,43,63]. I have not analyzed grammatical codeswitching and language alternation in detail in this article. From the examples, a pattern of single-word loans and language alternation and switching/alternating between sentences may emerge. To describe what is going on in this material, translanguaging works better than codeswitching to explain how resources are used, are meant to be used, and encompass all linguistic resources with the aim of preserving a minority language.

Cenoz and Gorter's five "guiding principles for sustainable translanguaging for regional minority languages" bring out the ideas sustaining a minority language and translanguaging in a pragmatic way. Designing functional breathing spaces should ideally be monolingual and be a sort of protected place. However, the breathing space is not like traditional immersion, completely without interference from the majority language. The kindergarten where I did fieldwork is not a space where only the minority language is spoken, but it is still a breathing space for Sámi language outside Sámi core areas. The development of Sámi kindergartens in general has provided such spaces, as I argue in my thesis on bilingual roleplay in North Sámi and Norwegian [36,37], but the situation in this kindergarten does not have a monolingual ideal, and a breathing space could be something else: "Even though this principle can be seen as linked to traditional practices of language isolation, it differs from these practices because schoolchildren will have breathing spaces along with pedagogical practices based on translanguaging as can be seen in the rest of the guiding principles" [9].

The pedagogical use of Sámi in kindergarten is storytelling, and the use of certain key terms from Sámi requires the children to know some Sámi. Teachers use both languages initially but then try to use the Sámi words for different situations. In bilingual situations, the choice to be monolingual must be prompted by something. In this kindergarten, the children rarely used any Sámi. We experimented with using the GoPro cameras as something to speak Sámi to, explaining things to the camera: Go film something and say it in Sámi. However, being rigid about these forced "breathing spaces" or needs could silence the children: They would choose not to use or speak to the camera if it was Sámi only. The ideal of the need to speak using Sámi was more pragmatically handled and taken down to play situations where the teachers would serve as translators and facilitators. Feeling the need to use even one more Sámi word is a victory.

The third and fourth principles are to use emergent multilinguals' language resources to reinforce all languages by developing metalinguistic awareness and language awareness. In my material, the two kindergarten teachers were emergent bilinguals. They would often discuss language, translate terms, and openly express insecurity before they spoke Sámi. This constant pointing to form and meaning should lead to a higher level of metalinguistic awareness, and one of the children, Anna, would often use her knowledge of language to play with concepts. Translanguaging practices enhance language awareness, and we can see in the material that the children acknowledged that Sámi was the preferred language, and they tried to answer in Sámi. Being aware of social status, functions and language practices, and the when and where of using the different languages, can be shown in the quite unexpected use of the English "no" by Julie. The awareness of kindergarten practice as "not Norwegian" is awareness of language. The development of multilingual identities, the understanding that we can be both Sámi and Norwegian, is more of an issue with the adults. The adults' continuing use of Sámi, even just in translingual episodes, confirms that Sámi identity was present even if they could not create a monolingual Sámi "breathing space." The fifth and final principle involves both the pedagogical planned translanguaging and the participants' spontaneous translingual practices. Although the children seemed to have

some understanding of the situation as Sámi, and they comprehended Sámi to some extent, they still did not use Sámi spontaneously. In my material, the adults took responsibility for making spontaneous translingual models. We could see how this worked when Jan Tommy used Sámi with Norwegian grammar in the past tense in Sámi sentences or inserted Sámi words for objects and actions in Norwegian sentences. A sustainable practice in language contact situations could be to recognize and use minority language words and expressions in everyday majority language speech. The pedagogical translingual practices of the staff could contribute to providing the children with role models for spontaneous translingual practices where Sámi is not excluded from Norwegian language practices.

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Building education for sustainable futures in early childhood: Transformative learning captured within an intercultural training program for government stakeholders from rural China

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Abstract

The purpose of this study was to address the impact of international collaboration on education for sustainable development in the context of early childhood education in rural China. Government stakeholders in three Chinese provinces participated in a 14-day program in Bergen, Norway, focusing on early childhood education for sustainability (ECEfS). The overarching questions were how the participants experienced the transformative learning in a study-abroad program, how they perceived their experiences affected their "glocal" awareness of ECEfS, and how they reflected upon their experiences to form new glocal perspectives of ECEfS. The theoretical framework of the study was inspired by Mezirow's perspectives on transformative learning. In this study, 11 participants wrote narratives and reports about their experiences in Norway and were later interviewed about their understanding of ECEfS and the steps they were taking after the training period. We identified three E's: experiencing cultural shocks and "outsider" status, engaging critical reflections upon ECEfS, and envisioning commitment to future action, with five key components of transformative learning—a disorienting scenario, emotional response, critical reflection, perspective change, and commitment to future action within the ECEfS. Implications for intercultural experiences as catalysts to trigger transformative learning, and for building a dialogic relationship and hybrid organizations as agents of positive social change, and recommendations are included in the final section of this paper.

Keywords

early childhood education for sustainability (ECEfS); education for sustainable development (ESD); transformative learning; China; Norway

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Introduction

During the United Nation Decade of Education for Sustainable Development in 2004–2015, early childhood education (ECE) did not play a significant role in the resulting governmental policies and innovative practices even though the purpose of education for sustainable development (ESD) was to reorient education toward a sustainable future for the common good of present and future generations (World Commission on Environment and Development, 1987). ESD has promised to build key competencies for all from early on to enable a more sustainable and just society. ECE has emerged as an important factor in education for sustainable futures since the early years of leaning and development laid a solid foundation for sustainability (Engdahl, 2015). It is increasingly recognized that the development of a sustainable world will require "a shift in values, awareness and practices in order to change our currently unsustainable patterns of consumption and production" (United Nations International Children's Emergency Fund, 2013, p. 16) and that "the role of early childhood education for a sustainable society" (Hägglund & Pramling Samuelsson, 2009, p. 51) is "in preparing present and future citizens and in aiding societies to make the necessary transitions to sustainability" (United Nations Educational, Scientific and Cultural Organization, 2014, p. 70).

Why do China and Norway need to work together in ECEfS?

Early childhood education for sustainability (ECEfS) has a global history in delivering education through activities in and around natural environments, often involving gardening, outdoor and risky play, and excursions into nature (Davis & Elliot, 2014; Engdahl, 2015). Norway has a long and strong tradition in embracing these practices (Heggen, 2016), encouraging the "understanding of sustainable development … in everyday life" in kindergartens (Ministry of Education and Research, 2006, p. 7). Furthermore, Norway, as the first country and a pioneer, has officially mandated sustainable development as one of the core values of ECE (Ministry of Education and Research, 2017).

China's embrace of the Sustainable Development Goals, endorsement of the 2030 Agenda for Sustainable Development, and their sustainable development discourse have attracted more and more attention within the country, and they have become more active in ESD since the central government's recent presentation of national strategies for sustainable development (Zhou et al., 2016). China has called for even more effort to increase green development and green lifestyles as it seeks to balance economic growth with environmental protection, embracing ESD as a major concern in the new era. The development of ESD in China has mainly focused on high-quality kindergartens in megacities like Beijing, Shanghai, and Shenzhen; there has also been an urgent need to improve the quality of ESD in rural areas in China (Zhou et al., 2016).

Since 2004, Norway and China have collaborated extensively in ECE, with research mainly based in Beijing and Shanghai. The purpose of this cross-cultural collaboration has been to increase the quality of ECE practices by inspiring curriculum development and teachers' professional development (Birkeland, 2016; Birkeland & Ødemotland, 2018; Ødegaard, 2016). The fundamental idea in the collaboration has not been to identify best practices (Bray, 2014) but to mutually enhance transformative learning and mutual understanding (Mezirow, 2000).

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Inspired by this well-established collaboration, and funded by Western Norway University of Applied Sciences and the Rural Early Childhood Education Collective Impact Initiative, local officers and key principals in three Chinese provinces participated in a 14-day program in Bergen, Norway, focusing on ECEfS, in June 2018. Traditionally, the Chinese educational system implements a top-down structure, so the main idea in this program was to involve key stakeholders in transformative learning to promote actions in line with ESD in ECE in rural areas of China. The purpose of the program was to develop a space for networking and to encourage cross-national research and perspectives in the field of ECEfS and then advocate policy innovations, curriculum development, and professionalism in ESD in the ECE context of rural China.

Consequently, the aim of the present study was to specify and reconsider the effect of such an international training program for ESD in the context of ECE in rural China. The overarching questions were how the participants experienced the transformative learning in such a study-abroad program, how they perceived their experiences affected their global and localss of ECEfS and how they reflected upon their experiences to form new glocal perspectives of ECEfS. The term "glocal" comes from sociologist Roland Robertson (2012), who, among others, claimed that the term blurs the boundaries between local and global. Glocalization indicates that tendencies toward global homogeneity and centralization appear alongside tendencies toward heterogeneity and localization. Social problems are neither local nor global, but interdependent and interconnected. This is specifically relevant within ESD. There is a need to address educational practices as locally situated and with global awareness (Birkeland, 2016; Birkeland & Li, 2019).

Theoretical framework and literature review

The theoretical framework is inspired by and based upon the concept of transformative learning (Mezirow, 1991, 2000, 2003, 2009), modified in relation to ECEfS.

Transformative learning and critical reflection

According to Mezirow (2003), transformative learning is a uniquely adult form of metacognitive reasoning that involves reflection and revision of the frames of reference when having new experiences that challenge existing ways of understanding and acting.

Transformative learning is learning that transforms problematic frames of references—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, and emotionally able to change. Such frames of reference are better than others because they are more likely to generate beliefs and opinions that will prove truer or more justified to guide action (Mezirow, 2003, pp. 58–59). These frames of references, also named "meaning perspectives," embrace cognitive, affective, and action-related components. Our frames of reference consciously and unconsciously direct our patterns of thinking, feeling, and acting. The very essence of transformative learning theory is the promotion of critical self-reflection, leading to different worldviews and the behavior of change (Mezirow, 2009).

When we experience that our frames of reference do not coincide with our new experiences, we experience a disorienting dilemma. Our previous understanding is challenged, and there is a need to solve the dilemma. Exposure to disorienting dilemmas

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as a result of an external event causes a sense of internal imbalance, and is, according to Mezirow (1991), the starting point of a transformative learning process. This imbalance is often painful and challenges core beliefs and assumptions. Feelings of disorientation are therefore excellent opportunities for reflecting upon unquestioned assimilated values and beliefs and thus become opportunities for transformative learning to take place. Such challenging scenarios often happen through critical reflection in the context of dialogue with other people (Howie & Bagnall, 2013).

Mezirow's approach to transformative learning has been modified in reaction to its individualistic orientation when brought into dialogue with ESD. The transformation to sustainable development requires societal change; transformative learning for sustainable development is thus collective awareness for engagement in concrete initiatives. Facing the challenges of complexity for ESD, how to embrace a holistic perspective and understand the dynamic relationships between individual and collective transformations, requires one to figure out the complex connections between psychological, social, anthropological, economic and political perspectives (Alhadeff-Jones, 2012).

Study abroad as transformative learning

The very nature of study abroad involves international travel and experiencing unfamiliar environments, which, when combined with effective programming, can promote transformative learning. By situating participants in divergent cultural and academic settings simultaneously, great possibilities for transformative learning arise. Mezirow (1991) argued that adults construct a meaning-making system that allows them to give meaning to new experiences and provides them with a compass to guide future action. Therefore, the process of "perspective transformation" has three dimensions to be addressed: psychological (changes in an individual's understanding of themselves), convictional (an individual's revision of their belief systems), and behavioral (changes in an individual's lifestyle; McEwen et al., 2011).

Taylor (1998) showed that transformative learning can be achieved through perspective transformation. Furthermore, in combining strong academic content and geographic dimensions, even short-term study-abroad experiences can target that goal (Bell et al., 2014). The design of the intercultural training program was based upon these theoretical perspectives of transformative learning.

The intercultural training program

The training program, "Building a Sustainable Future for Our Children," at Western Norway University of Applied Sciences, was conducted for 11 delegates, including provincial and local officials and key principals from the Chinese provinces of Gansu, Guizhou, and Yunnan. The training program was based upon a collaborative project between Chinese and Norwegian kindergarten researchers, advocates from nongovernmental organizations (NGOs), practitioners, local officers, and related stakeholders. The overall aim of the 14-day training program was to create a space for networking, mutual understanding, and cooperation in the field of ECEfS. Furthermore, it aimed to encourage better practices in policy innovations, curriculum development, and ECEfS professionalism in rural China.

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The design and implementation of the training program was based upon transformative learning as a relevant theoretical perspective. The training program embraced the richness of transformative learning by emphasizing three key elements. First, a couple of scenarios were created, in which participants were likely to experience disorienting dilemmas. In these scenarios, key stakeholders from rural China encountered Nordic pedagogy regarding ECEfS in the intensive training program. Second, delegates were engaged into active problem-posing and problem-solving, being asked to prepare inquiries in advance of the study tour and to share their understanding in the group with the Norwegian counterparts at the end of the training program in Norway. All participants were expected by the sponsors and directors of the training program to disseminate knowledge to locals when they returned to China. Furthermore, they were required to develop an action plan that highlighted "acts of cognition not in the transferal of information" (Freire & Macedo, 1995, p. 67). Third, with a balance between personal and collective perspectives, we not only emphasized individual perspectives on transformation but also highlighted organizational actions at collective levels (Brooks, 2000; Tisdell, 2003). We promoted changes at the personal and social levels through group inquiry, with amplified consideration of cultural understanding and future-oriented actions, since provincial, city-level, and county-level officers were required to write action plans from an administrative perspective.

The goals were approached by undertaking the following activities: participating in preparation seminars and reading tasks, conducting observations in Norwegian kindergartens, participating and contributing in seminars, observing outdoor kindergartens, writing reflection notes, experiencing Norwegian everyday life and culture, writing group reports, and participating in dissemination activities after returning to China. The delegates were prepared by attending seminars and working through reading lists about ECEfS before their visit to Norway. Members of the delegation were challenged to present ESD from their local context to Norwegian participants. Then, the delegation was divided into three groups, which each had specific targets for their kindergarten observations. They were required to write daily reflection notes and present their learning journeys at the end of their stay, and they agreed to share their experiences with parents, teachers, and officers in China after their return. Later, after their return to China, delegates were interviewed about their understanding of ECEfS and the transformative actions they would take in the near future. Finally, provincial, city-level, and county-level officers were encouraged to create collective action plans in a broader region (see Table 1).

Table 1
An outline of the intercultural training program

Activity	Issue addressed
May 2018: Preparation and discussions	
Reading lists	China's embrace of the SDGs and endorsement of the 2030 Agenda for Sustainable Development
Attending a half-day seminar	
Local group work	Key concepts of the Nordic pedagogy and policy trends in ECE

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Activity	Issue addressed
	ECEfS in Norwegian kindergartens
June 2018: Training period in Norway	
Welcome seminar: Norwegian ECE	What does the discourse of child development look like in day-to-day life in Norwegian kindergartens?
Kindergarten observations (3 days; divided in groups with different foci)	
Seminars ESD in Norway ESD from home provinces	How do Norwegian kindergartens implement core values, such as equity, democracy, diversity, and mutual respect in their daily practices?
Visit rural areas of Norway Introduction to local governance Visit local museum and observe how it worked with ECE (cultural sustainability)	How are the framework plan and municipality policy of ESD implemented in kindergarten practices?
Observations in forest kindergartens (1 day)	
Participate in an outdoor hiking activity with one kindergarten	
Experience everyday life in Norway	
Write daily reflection protocols	
Closing seminar: Group reports and reflections	
Late June – December 2018: Reflection and actions	
Dissemination activities	How can Norwegian practices be connected to Chinese contexts in a glocal discourse?
Policy implementation	
Reflection reports	How can ECEfS be implemented in local communities?
Interviews	

Note. SDGs = Sustainable Development Goals; ECE = early childhood education; ECEfS = early childhood education for sustainability; ESD = education for sustainable development.

Methodology

The design of the study was based upon a development project (Davis & Elliot, 2014), with the premise that addressing key stakeholders would have an important impact on ECE practices in local communities. As a qualitative approach to inquiry (Creswell & Poth, 2018), this phenomenological research aimed to understand the essence of transformative learning, including what the participants experienced and how they experienced it (Moustakas, 1994).

The guiding questions for the study focused on what the participants experienced regarding transformative learning and how Chinese government stakeholders' lived experiences would transform their perceptions of ECEfS.

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Participants

Eleven key stakeholders, from Yunnan, Guizhou, and Gansu provinces, recommended by the provincial governments and NGOs with long-term and intensive cooperation in rural China, participated in the training program. These participants were not selected as a result of purposive sampling in the research project but were selected as part of the training program that targeted key stakeholders to promote leading actions in line with ECEfS in rural China. The participants represented different levels of informants and decision-makers in ECE (see Table 2). The sample size fell within the recommended range for a phenomenological study (Creswell & Poth, 2018).

Table 2
Participants, by institution and province

Job title	Province			Total
	Gansu	Yunnan	Guizhou	
Provincial officer		1	1	**2**
County officer	1			**1**
City officer			3	**3**
City-level teaching researcher			1	**1**
Kindergarten principal	1	2	1	**4**
Total	**2**	**3**	**6**	**11**

Procedures

Data collection. As transformative learning theory (Mezirow, 1978) and phenomenological research both require in-depth reflection, data in the form of reflective questionnaires and semistructured interviews—designed to track participants' learning and experiences over the course of the program—were collected for two forms of data. Each participant generated two kinds of reflection: personal reflection journals (PRJs) during the program and personal interview documents (PIDs) at the end of the program.

Instrument #1: Two general and broad questions were given to participants at the beginning of the program—What have you experienced in terms of ECEfS in Norway? What contexts or situations have typically influenced your experiences of this travel study?

Instrument #2: Semistructured and in-depth interviews are one of the main methods of collecting qualitative data in phenomenological research (Polkinghorne, 1989). The interview protocol was designed by the researchers, drawing on the literature. The key concepts were adapted from the Environmental Rating Scale for Sustainable Development in Early Childhood (Specifically, it consisted of three major sets of questions: (1) personal and professional background, (2) understanding of ECEfS in terms of key concepts from ESD, and (3) social actions to be targeted in the near future.

Interviews with all participants ranged from approximately 60 to 90 minutes and were conducted in Mandarin.

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Data analysis

The reflection notes and interview transcripts in Chinese, were analyzed thematically (Kvale & Brinkmann, 2015) from the perspective of transformative learning (Mezirow, 1991, 2000, 2003, 2009). They were only translated for presentation in this paper and the participant quotations later were prepared by the first author. The qualitative data were analyzed using open coding, axial coding, and selective coding (Corbin & Strauss, 2008). Codes were revisited and changed as the analysis proceeded. Emergent themes were identified based on the concept of transformative learning with three dimensions (Mezirow, 1991; McEwen et al., 2011). Disorienting dilemmas were identified as participants (as outsiders) experiencing ECE in a different culture. Furthermore, their reflections upon ECEfS were categorized, as were their explanations of their choices of new behaviors and action planning (Mezirow, 2000). Our findings on the participants' transformative learning experiences were analyzed with three thematic foci, in terms of three E's: experiencing cultural shocks and "outsider" status, engaging critical reflections on ECEfS, and envisioning commitment to future action. The E's as antic framework were echoed by three dimensions of the process of "perspective transformation" which leads formative learning (Mezirow, 1991; McEwen et al., 2011).

Ethical considerations

The invited participants agreed to take part in the study. All participants were informed of their right to withdraw from the reflection journals and interviews and to refuse recording at any point in time. The anonymization only occurred after data were collected. In fact, two participants failed to provide reflection journals, and three participants were not available for interviews because of heavy workloads or job transfers after returning to China. Only one participant quit all data collection procedures, due to heart disease, but provided some feedback via WeChat messages.

Information regarding the interviewees' job titles and individual characteristics are not reported here so as to preserve the confidentiality and anonymity of the informants. Access to the data is restricted to the researchers.

Validity

As qualitative researchers, we were positioned as both insiders and outsiders in the project and moved beyond a strict outsider/insider dichotomy to emphasize the relative nature of researchers' identities and social positions, depending on the specific research context. The first two authors of this paper have rich experience in China and Norway as native researchers, respectively, and they work as international and comparative researchers in both cultures and beyond. Thus, they were able to both simultaneously play roles as outsiders and insiders and also find some space in-between. However, as a phenomenological study, we did not have ambitions to overgeneralize the research results to all rural regions in China but instead sought to determine the essence of the phenomenon of transformative learning as captured in this intercultural training program.

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Findings

Our findings on the participants' transformative learning below are organized under three thematic foci, in terms of the three E's: experiencing cultural shocks and "outsider" status, engaging critical reflections on ECEfS, and envisioning commitment to future action.

Experiencing cultural shock and "outsider" status

First, all participants expressed overwhelming feelings about their profound experiences of disorienting dilemmas, especially incredibly resilient children in outdoor and risky play sessions. This image of resilient children was in a sharp contrast to the image of "precious" children in China. Government officers shared common concerns in their daily reflection journals.

Resilient children. The participants were very puzzled in their first observations of the Norwegian kindergartens. This participant was confused about the practice and, at the same time, evaluated the practice as somewhat better concerning children's holistic development:

> I did not really understand the practice of such an outdoor kindergarten by the sea. Children just played everywhere all the time, but they obviously have better development in a holistic way than our children. (PRJ-YAO-20180606)

The same reflections of shock regarding the Norwegian kindergarten and about how this practice might be experienced in China were expressed by the three following participants:

> When I saw the Norwegian children enjoying risky play in the forest freely and skilfully, I thought about our view of children as overprotected by teachers and parents. (PRJ-XI-20180605)
>
> I was really shocked by the outdoor nap time for children under 3. If you did a similar thing in China, then you might face parents' complaints of child abuse. (PRJ-OUM-20180605)
>
> I have suffered from parental fears of risky play and complaints about children scuffling in kindergarten. It would not be possible for us to do that. (PRJ-ZIM-20180612)

Professional pedagogues. Second, the participants expressed confusion about the professionalism of the Norwegian pedagogues[1] at the beginning of their training program. They reported their puzzlement in the initial days in Norway in terms of how to understand the social pedagogical practices:

> It's hard to tell at a glance that the activities have been fully planned by the kindergarten pedagogues. (PRJ-HAI-20180605)
>
> The pedagogues in the seaside kindergartens just let children play freely. If you did that in our place, you would not be called a professional teacher. To be honest, our children are tired of the highly controlled environments. (PRJ-LUM-20180605)

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At the same time, participants were deeply impressed by the professional work of the pedagogues when delivering teaching on living with nature in later ecological citizenship sessions:

> The pedagogues have wonderful preservice training in delivering outdoor curricula, which helps them become better teachers in ESD, especially in the environmental aspects. (PRJ-OUM-20180613)
>
> After a few days, I understood the preparedness and professionalism in the forest kindergarten. I was surprised by the head teacher in this family kindergarten who planned a wonderful 1-day forest curriculum. We learned a lot. (PRJ-WONG-20180613)

Engaging critical reflections on ECEfS

While immersed in disorienting dilemmas, participants documented their critical reflections in terms of understanding ESD in ECE as part of a glocal and culturally appropriate citizenship. First, cultural sustainability attracted much attention from the participants:

> Some rural children in China might have forgotten how to act as smart locals and do not love the rural identity, not to mention how to live with nature as their ancestors did in mountainous regions. We need to support cultural sustainability as locals. (PRJ-OUM-20180613)
>
> We have too many highly homogeneous kindergartens with similar inside and outdoor displays, and we might need to learn more from local cultures respecting them as resources for kindergarten-based curriculum development. (PRJ-YEH-20180613)

Second, a dialogic relationship within intercultural contexts was developed in some scenarios when participants discovered Chinese elements in a kindergarten with close connections to Chinese colleagues, which made them critical but more open. In the last visit to a family kindergarten, a participant shared her intercultural experience in China regarding how to encourage the teacher's active role in children's free play on the way to a mountain for a 1-day outdoor curriculum, which helped participants think deeply about mutual understanding and co-constructing best practices in ESD in ECE.

The participant mentioned she had learned much about how to be an intentional teacher, balancing child-initiated and teacher-initiated activities, during her visit to Beijing and Shanghai:

> We have strong traditions regarding how to train the best teachers, and Norway has better policies to create the best childhood. We could learn from each other in many ways. (PRJ-XI-20180613).

Furthermore, some participants highlighted how learning from cultural philosophical traditions and best practices from the pioneers in Chinese ECE could support them in embracing ESD in ECE. These accounts referred to the connections between the Daoism and Norwegian practices. One senior officer suggested that Daoism was echoed in the Norwegian contexts:

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> As it is said in the Tao Te Ching, "Man takes his law from the Earth; the Earth takes its law from Heaven; Heaven takes its law from the Tao. The law of the Tao is its being what it is." The Norwegian way is close to Daoism. It's a pity that we lost it somewhere before. (PRJ-YAO-20180613)

Another focus was on the father of modern kindergarten education in China, Heqin Chen (1892–1982), and his theory about "living education." Chen argued for a child-centered approach to education. Following John Dewey's principle of experiential learning, Chen adapted progressive educational ideas to Chinese conditions and initiated and developed new ones. Chen believed that there must be an interaction between individuals and the environment and emphasized the importance of the natural environment (including animals, plants, and other natural settings) and the social environment (contact with individuals, families, streets, etc.) in childhood development. This might explain why another participant wrote the following:

> As to Education for Sustainable Development [ESD] in Early Childhood Education, we do find some ambiguous suggestions in our kindergarten guidelines. At the same time, even in the early 20th century, Heqin Chen reminded us not to adopt foreign ideas without critical thinking but to adapt to basic principles and create our own models. That's why the head professors for the training program keep reminding us to be critical. We need to learn from good theories and practices supported by Heqin Chen, which could connect our values to ESD. (PRJ-XI-20180613)

During the learning journey, participants engaged in critical reflection and cross-cultural connections in ECEfS. Furthermore, the two main researchers also discussed, with some participants, deep ecology (Naess, 1986) as an example to connect Daoism to extend their dialogues.

Envisioning commitment to future action

The participants were interviewed and challenged to reconsider their learning journey. Furthermore, they were required as part of the program to map their social actions in the near future or to recall what they had done to integrate ESD in ECE into their local contexts.

From the government officers' perspectives, good governance is an indispensable component of ESD in ECE. Furthermore, they highly recommended the better use of community resources to develop the curriculum, especially in ways that would benefit environmental and cultural sustainability. Finally, some participants recognized that overprotective parenting is unpleasant and that the trend toward so-called helicopter parenting is strong in China. They said:

> The top priority is to improve effective governance and emphasize process-oriented quality in ECE … Curriculum development is also a target for city-level actions, and children need more outdoor time … The most challenging task is to work with teachers and parents to encourage children's exploration rather than to overprotect them. (PID-WONG-20180615)

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> We might need to provide a more inclusive environment for all children and for all kindergartens. (PID-HAI-20180617)
>
> We will encourage more environment curricula in our county and work with the local community and parents to better use community resources to support better cultural sustainability. (PID-YAO-20180707)

Practitioners focused on curriculum development for environmental and cultural sustainability. In addition, they stressed the importance of teaching research and encouraged teachers to apply for funding to conduct mini research projects to integrate knowing and doing:

> port teachers to develop curricula for Education for Sustainable Development [ESD] in Early Childhood Education through teaching research and research funding. Furthermore, planning environmental curricula with field trips and outdoor planting could be an alternative. (PID-OUM-20180617)
>
> I have been engaging in the integration of cultural activities into kindergarten-based curricula for the last decade. In our culture, we have long traditions of respecting and living with the nature. I feel much more confident now and will continue to explore it. (PID-ZIM-20180614)

However, they also expressed concerns about supportive policies and parental ideology:

> We need more supportive policies to further investigate ESD because the safety issue is the top priority. (PID-OUM-20180617)
>
> We feel vulnerable when we face criticism from parents, and it's very difficult for teachers to encourage outdoor exploration without clear rights and responsibilities. At the same time, parents also need better understanding of outdoor learning. (PID-ZIM-20180614)

In fact, when the participants returned to China, they provided workshops and lectures for local parents to introduce the risky play and outdoor explorations observed in the Norwegian kindergartens, which may have helped with parental anxiety and peer pressure so as to then better nurture resilient children.

Discussion

Our findings are consistent with some previous researchers who have found that intercultural experiences provide a stark contrast between the practices of ECEfS in participants' home countries versus their host country (Bell et al., 2014; Taylor, 1998). These experiences were difficult and overwhelming, as well as positive and inspiring for their innovation.

Intercultural experiences as catalysts for disorienting dilemmas to trigger off transformative learning

The research findings reconfirmed that high-quality short-term study-abroad experiences can spark transformative learning (Bell et al., 2014). Intercultural experiences that promote

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sensory, intellectual, and affective learning have been recommended as catalysts for transformative learning in teacher education programs (Birkeland & Ødemotland, 2018). In this training program, the intercultural experiences provided time and space for the creation of disorienting dilemmas, critical reflections, and acts of cognition in later scenarios. Encouraging more cross-cultural cooperation for ESD in ECE in the future could help further investigations into glocal and culturally appropriate citizenship.

Building a dialogic relationship with mutual respect and understanding

In this study, three E's as themes were identified: experiencing cultural shocks and "outsider" status, engaging critical reflections on ECEfS, and envisioning commitment to future action, since study abroad as transformative learning has been triggered. Furthermore, five key components of transformative learning could be further elaborated in three E's embedding in this study-abroad training program: a disorienting scenario, emotional response, critical reflection, perspective change, and commitment to future actions for ECEfS.

Participants underscored the connections between two cultures in ECEfS. It might be another good point to further promote ECEfS in the two countries. Even though China and Norway are far apart in terms of distance, culture, history, and geographical landscape, they have similar philosophies about how to live with nature. Daoism has a unique sense of value about how humankind should live with the universe (Palmer & Finlay, 2003). The deep cultural roots and great social impact of Daoism make it one of the three most recognized religions in China (the others are Buddhism and Confucianism), and Daoism has great potential to embrace ecological citizenship. Ecologists have emphasized Daoist values relevant to environmental theory (Naess, 1986). Furthermore, since the religion, culture, nature and environment haven been inextricably interw together in the Chinese experience, Daoism as the "green religion" could aid our search for a sustainable future, from the perspective of an emergent paradigm of sustainability (Miller, 2017).

This training program was supported by the cooperation among heterogeneous stakeholders from different sectors as hybrid s. The use of hybrid organizations has been a key strategy in addressing social and environmental sustainability challenges, such as poverty, climate change, and environmental destruction, which have received a great deal of attention in recent years (Boyd et al., 2009). Hybrid organizations usually cross the boundaries between public and private sectors, and this idea was reflected in the efforts of the intercultural training program, which was funded by public universities and NGOs from China. This can be understood as a collective-level action plan and shows that, in the education sector, different levels of key stakeholders need to work together as agents of positive social change. In this program, social relations were built among different stakeholders. The stakeholders involved in the short-term study-abroad experience might have a somewhat liminal position in China representing provinces in the western part of the country, with fewer economic resources in ECE than in the big cities in the east. A temporary upheaval of the traditional hierarchy between different stakeholders created opportunities for all members to equally share a common experience and to promote the conditions for community social change (Buechner et al, 2020).

As a profound outcome, transformative learning involves three fundamental elements supported by this research and also documented in research literature: searching for,

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analyzing, and synthesizing of information for decision-making with cognition and emotion (Jokikokko, 2016; Mezirow, 1991, 2000, 2009; Zembylas, 2003); achieving core competencies for effective teamwork in ESD (Birkeland & Ødemotland, 2018); and working with hybrid organizations for the creative adaptation of global resources to address local priorities in ECEfS (Boyd et al., 2009).

This study tour exerted a positive influence on ECEfS in the three provinces based on the collective-level action plans. Supported by local governments and related NGOs, Yunnan province has started to work with government museums, botanical gardens, and private folk repositories to develop curriculum modules for cultural sustainability. Related counties from Guizhou province have explored better local governance and extended their curriculum development to embrace more outdoor play. Targeted counties from Gansu province have successfully found support from parents to create a weekend mountain climbing club for children.

Implications and recommendations

This research project aimed to gain insights into the nature of transformative learning in a study-abroad program. This study may be a starting point for examining and confirming the positive effect of an intercultural program as a trigger for transformative learning and enhancing key competencies for ECEfS specifically. Transformative learning can occur as a result of short-term study-abroad programs when academic content is carefully paired with the geographic dimension of studying abroad thereby creating the greatest impact in sustainability education and fostering glocal citizenship.

Participants' documentations and discussions of their learning journeys showed that our methodology inspired transformative learning for participants as key stakeholders in local provinces and that this intercultural training program contributed to ESD in ECE. Further innovations for ECEfS will be explored in the near future by the key stakeholders.

Notes

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Compliance with ethical standards: The authors declare no conflicts of interest. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institution and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

[1] In Norway, kindergarten teachers prefer to use the professional title "pedagogue" due to a long tradition of Nordic social pedagogy.

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Strengthening the Call for Intentional Intergenerational Programmes towards Sustainable Futures for Children and Families

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Abstract: As a response to the call for reimagining early childhood education for social sustainability in the future, this conceptual paper aims to suggest revisiting and strengthening the case to include intentional intergenerational engagements and programmes in kindergartens as approaches towards sustainable futures for children. In this paper, we argue that we must talk about intergenerational solidarity on all levels, including in early childhood education and care settings, and that it must be deliberate and by design. Learning from cultural–historical concepts and the UN Convention on the Rights of the Child, intergenerational programmes in early years settings are to be presented as intentional initiatives and opportunities for interrelated and collaborating actors and institutions to bring younger children and older adults together. We present a conceptual framework that features conflicts and opportunities within overlapping and congruent spaces to understand conditions for various intergenerational practices and activities in different places, and to promote intergenerational dialogues, collaborations and shared knowledge, contributing to a relational and socially sustainable future for which we aim.

Keywords: intergenerational programmes; conceptual framework; early childhood; social sustainability; cultural–historical

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1. Introduction

Relationships between the youngest and oldest life stages have been well documented by research throughout the years, particularly within the family as an institution. Interactions between grandparents and grandchildren have long been identified as beneficial to children's growth and development. Grandparents are seen as an important family resource [1], with care and socio-educational roles [2] when engaged in play activities [3,4] and intergenerational dialogues [5]. Previous research has also established the importance of these familial intergenerational interactions as a means to pass on cultural heritage, and thus contribute to cultural sustainability [6].

However, there have been events throughout history that have contributed to changes in societies that have affected these intergenerational relations. The past couple of decades have seen an increase in mobility from rural to urban areas [7], as well as movements to other countries or continents. This internal and external migration is rooted in economic reasons as part of globalisation [8]. This diaspora led to demographic changes—the younger generations leaving to seek better job opportunities in cities and the older generations staying behind in more rural settings [9]. The diaspora also means that there are more families with young children living away from grandparents, resulting in fewer interactions between generations [10]. In most Western societies, the parent(s), who are part of what are deemed sandwich generations [11,12], need to work, while their children spend most of their time in early childhood settings, such as kindergartens or schools. Early years institutions have long been considered an arena for cultural formation [13]. They are also

sectors that plays an important role in achieving sustainable goals [14] and contributing to building sustainable societies [15]. These institutions foster young children's formative development. As an example, the Norwegian framework plan for kindergartens [16] seeks to promote the core values of democracy, diversity and mutual respect, as well as equality, sustainable development, life skills and good health in enabling children to participate in and contribute to their communities. Engaging in social relations, exploring different aspects of interactions within a community and developing friendships is also something that kindergartens offer young children [16]. It is considered a safe and challenging space where they are given support to cope with adversity, tackle challenges and have opportunities to consider their own and others' feelings [16]. However, although children in early year settings transition and participate in other institutions within their communities, little is known about specific activities or programmes that involve children's interactions with the elderly beyond their families. There is a need for further qualitative and context-specific intergenerational research that includes the participation and voices of the elderly and children in their early years [17].

Social sustainability concerns social, cultural and political issues that affect people's lives within and between nations [18], as well as an extension of collective rights to include future generations [14,19]. Hence, we argue that the attainment of social sustainability necessitates cooperation and collaboration of not just individuals but also of institutions within a particular context. Individuals and institutions with shared goals and a vision of fairness and justice for all [14] lead to outcomes of social sustainability. Further, social sustainability is also related to "finding new ways of living together, strengthening social capital and participation as well as social justice and equity" [20] (p. 342). Belonging has also been suggested as a core concept of social sustainability, as it is conceptualised as relationally negotiated and practised in kindergartens [19].

This paper aims to strengthen the call for the inclusion of intentional intergenerational programmes in early years settings, such as kindergartens. Specifically, we argue that social sustainability is a resulting outcome of intergenerational programmes in kindergartens, making a case for it to be included in planned activities. There is a growing body of intergenerational research that documents intergenerational programmes among different ages and in different settings [17], and early childhood education and care is an emerging field in this scientific movement. In this paper, we acknowledge current intergenerational work being undertaken in early childhood education and care settings, but argue that aiming for sustainable futures requires more intentional and deliberate conceptualisations. To support our argument, we present our first attempt at a macro conceptual visual representation of elements of intergenerational programmes in kindergartens. A macro view allows us to theorise conceptualisations and components of conditions for intergenerational engagements and programmes in kindergartens. As part of a project in KINDknow—Kindergarten Knowledge Centre for Systemic Research on Diversity and Sustainable Futures, we write from a position of belief in the potential benefits and outcomes that intergenerational engagements offer to families and institutions, children and older adults, as documented by previous literature [3,5,21,22]. It is our intention to thrust forward intergenerational engagements and programmes within the field of early childhood to create bigger spaces and opportunities for dialogues, play and collaborative explorations between young children and older adults in early childhood settings. Through this conceptual work, we offer a framework for understanding and analysing ongoing intergenerational engagements and programmes in early childhood institutions. This framework will also be used for the analysis of data generated in the larger research project to which this paper belongs. In that research project, which aims to explore and understand conditions for intergenerational engagements during a pandemic, data were generated in Norway and, incidentally, the Philippines. As such, this conceptual work reflects the need for localised interpretations.

Before we move forward with the discussion, we offer some operational definitions for clarity. In this paper, *generations* pertain to relational cohorts arranged in a structural system of social ordering circumscribed in particular social locations with material, social and

cultural processes in which people act and participate in ongoing social life as individual and collective actors [23]. In particular, we focus on intergenerational engagements of young children in the early years stage from birth to six years of age, and older adults 50 years old and above to include persons who have become grandparents at earlier stages of life. *Early childhood institutions* refer to societal organisations in which young children participate, and where intentional, relational and glocal intergenerational engagements and programmes happen. This includes both family and early childhood education and care settings. *Kindergartens* are used concurrently and alternatively with early childhood education and care (ECEC) settings or early years settings and refer to the same meaning. *Intergenerational engagements* refer to more informal but intentional interactions among different generations. As above, our focus is on engagements between younger children and older adults. These engagements happen in family and community settings, as well as in institutions. Intergenerational engagements could be considered an umbrella under which intergenerational programmes belong. This terminology is used concurrently and alternatively with intergenerational interactions. *Intergenerational programmes* refer to more formal intentional initiatives bringing younger and older generations together within and across institutions through practices and activities. Characteristics of intergenerational programmes, particularly those involving children in early childhood years, will be expounded within this article. *Sustainable futures* refer to a vision of a desirable future of a culturally, socially, economically and ecologically balanced way of living that is directly influenced by present and past initiatives. In this research, activities, practices and programmes that promote intergenerational solidarity are proposed to attain this vision.

The next section discusses the theoretical underpinnings of this conceptual work. This is followed by a section that presents the macro-visual conceptual framework, which is later broken down and discussed in smaller parts. We conclude the paper with a discussion of the implications and limitations of the conceptual framework.

2. Grounding Theories for Conceptual Development

2.1. Conceptual Process

To understand how intergenerational programmes in kindergarten can contribute to social sustainability, there is a need to elaborate on the different components, elements and concepts that contribute to the conditions affecting these programmes. In this paper, we present a framework for understanding and analysing these elements and concepts through a visual graphic representation. Each concept is represented and discussed individually and visually regarding other elements in the framework.

Our conceptual process began as we tried to utilise existing visual models, such as Hedegaard's Cultural–Historical Wholeness, e.g., [24,25] model and Bronfenbrenner's Bioecological Model of Human Development [26,27], to represent how we understand and view intergenerational engagements and programmes. However, there were limitations to the existing models. We needed a model that captured and highlighted the interactions of each element. We also needed a visual model to capture time and artefacts, which have implications for understanding intergenerational engagements and programmes. Our inquiry began with a review of the literature within the field of ECEC and social sciences. In this paper, we present our preliminary conceptualisation, which could benefit from further development through a more extensive and systematic literature review.

In the succeeding part of this section, we discuss the grounding theories that have influenced our conceptual process.

2.2. Cultural–Historical Perspectives

This conceptual work draws on cultural–historical philosophies and theoretical perspectives. Common to these epistemologies is the view that humans live their lives, entwined in both global mechanisms and local activity settings, and are to a large extent dependent on cultural–historical traditions and institutional dynamics of personal relations and how families, practitioners and children interact with artefacts and material conditions.

These cultural–historical traditions and mechanisms, which are continuously renewed in social activity, are considered central forms of life, constituting life trajectories [24,28–30]. Vygotsky's [31] recognition of social processes and interactions as major factors leading to development in human beings of all generations may be young children or older adults. Dealing with the problems of becoming human is central to cultural–historical approaches. As pointed out in the prologues of Vygotsky's collective works [32], Vygotsky believed that higher psychological phenomena are stimulated and constituted by social relations. His ideas were influenced by the stage director Stanislavski, whom he cites, and also by the philosopher Bakhtin [33]. These authors give attention to imagination, emotion memory, communication and dialogue, and were elaborated in Vygotsky's work [32]. Throughout his works, Vygotsky dealt with the classic problems of psychology: perception, memory, thought, emotion, imagination and will, all through the lens of human development in societal systems. Social interactions and people's interactions with materials and artefacts in activities are a major factor leading to social and cultural development and growth [31]. For Vygotsky, becoming human implies a mental picture of human processes becoming ordered, systematic or controlled through interaction (e.g., speech starts externally and ends as inner speech; emotions move inward and escape peripheral control; imagination is play gone inwards) [32].

In several contexts, Vygotsky discussed the emergence of indicative gestures in the infant's interaction with an adult [34]. He points to the experience that, when an infant cries or reaches out for an object, the adult attributes meaning to the act. Even if the infant has no particular intent, the act will function as communication. The adult will respond accordingly to the needs of the children as they understand them. In this way, the adult's attempt to interact with the child will include the child in a social activity before the child has the capacity or understanding to respond adequately in the interaction. Vygotsky argued that that this secures a foundation for the cultural transformation of the infants' actions into intentional indicative gestures, talk and activity [35].

This observation and discussion were further theorised in Vygotsky's work on the Zone of Proximal Development (ZPD) [31]. The idea in ZPD attends to the role of dialogue and interaction as precursors to inner speech. When an expert interacts with someone less expert, the latter is able to reflect on the dialogue and interaction, to use distinctions in concepts, pick up details in actions in activities, reformulate thoughts and change actions. In Vygotsky, we see the adult implicit as the expert (e.g., teacher, parent, more knowledgeable peer), and the child is implied as the less expert and the learner. In our study, we anticipate that children are experts in certain areas (e.g., experts in their own emotions and imaginations and in certain modes of action). We thereby challenge an automatic assumption of the generational order [23] of adults, older or younger, automatically being more skilled in every respect than children.

Vygotsky also discussed the problem of age and the role of crises in critical periods of life [36]. He states that age is an objective category and not an arbitrary, freely chosen, fictive value. Nevertheless, he problematises the theories that periodically scheme age groups because they tend to isolate an objective trait. For this reason, he argued that guideposts that mark age must see child development as a complex process that cannot be determined completely according to one trait alone at any stage. In different children, critical periods will occur differently, even if being born and developing and losing teeth can be seen as a biological and general crisis in childhood years. During the passage of a crisis, even in children most alike in type of development and in social situations, there is great variation and, therefore, a predefined crisis should be considered the exception rather than the rule in child development. For Vygotsky [31], the concept of crisis suggests a lifelong process, and hence suggests the need for a relational, interactional and interdisciplinary understanding of concepts. Later pioneering scholars in the fields of early years' child development and growth, such as Barbara Rogoff and Mariane Hedegaard, have further developed this problematisation and provided empirical research to show that diverse human cultures assign different roles and expectations to children of the same age [37].

Barbara Rogoff and her team described learning processes in diverse cultural settings. Studying indigenous communities, they conceptualised intergenerational learning as Learning by Observing and Pitching In (LOPI) [38]. Central to LOPI is that the child (articulated as the learner) is incorporated and contributes to the family's endeavours. Communication will be both nonverbal and verbal, and the learner will be eager to participate and belong. The social organisation of activities will be flexible and collaborative. Additionally, there will be a blending of ideas and agendas. Rogoff and her team found that, in the same communities, children from the formerly indigenous community were likelier than children from the cosmopolitan community to show aspects of LOPI. Children showed wide and keen attention to surrounding events and used a balance of articulate nonverbal conversation with talk. The study of participation in cultural practices does not categorise people by a single ethnicity, race or nationality, and makes generic assumptions about their cultural ways based on their "social address"; it focuses on examining what people *do*. Rogoff argued that the histories of LOPI practices across generations and locales are an important tool for understanding commonalities and differences that may occur across different times and places [39].

2.3. Cultural Artefacts

Central to human perception and formation are interactions with the cultural artefacts (tools) made available to us. Humans experience and understand the world in terms of the artefacts of our culture, and these can be considered key to the development of what Vygotsky [40] referred to as higher mental functions, such as remembering, imagining and understanding symbols, signs and conceptions. Max Wartofsky questioned the notion that human perception is natural, and argued that it is an activity that is mediated by artefacts such as tools, language and models [41]. These mediating artefacts, Wartofsky argued, are objectifications of human needs and intentions "already invested with cognitive and affective content" [42] (pp. 205–206). Activities involve multimodal processes and multiple forms of awareness. Wartofsky categorised artefacts into three forms of perceptual and performative activities, as follows:

(1) Primary artefacts: traditionally a hammer, a needle, scissors or a camera; used in production and labour.
(2) Secondary artefacts: relating to primary artefacts (such as a user manual for a camera or instructions for cooking (a recipe).
(3) Tertiary artefacts: representations of secondary artefacts, symbols, theories and models (imagining new ideas).

The process of gradually taking over and being able to use an artefact is referred to as appropriation by Barbara Rogoff [28]. Relevant to our study is that an artefact, whether a manual tool, a sign, a model of thinking or language, or all these at the same time, will entail a history and come with connotations and rules of use, and can bring up feelings and create memories. A scenario can serve as an example; when an older adult, in a programme of intergenerational meetings, will meet children, this activity can trigger their own childhood memories and actualise, for the older adult, the use of certain artefacts and their own experiences with mastering the use of a tool, and will easily set a standard for how to use the tool, when to use it and whether it will be appropriate in certain situations. For the child, the availability of certain artefacts for use in activities will evolve as experiences in the situation, and will later be a resource in the embodied memory of concepts for use, modes of action and emotions triggered.

Wartofsky wrote about the tertiary artefact as a representation of "imaginative practice" [42] (p. 207). This inspired Michael Cole [43] to exemplify how a certain pedagogical approach can be a tertiary artefact in this regard, explaining that the tertiary artefact can be embodied as alternative canons of representation. Once an imagination of an idea can be lived perceptually, it can also come to influence and change our perception of the actual world. As such, tertiary artefacts enable perception, planning and revising of practice [43]. This category will serve as a thinking tool for further theorising in this paper.

The concept of artefacts allows us to problematise age, understood as a historical and biological chronological process only, and intergenerational activities and programmes. As much as chronological age is not the only clue to biological ageing, nor will artefacts mean the same for people in and across a certain age group. There might be collective memories because a certain version of an artefact was stable in a certain time and, for that reason, many of the same generation will have similar experiences. For example, the telephone as an artefact has certain characteristic aesthetics and use in historical time and culture; nevertheless, as an artefact, it indicates a use and meaning that could work across generations. An artefact, whether a manual tool, a sign, a model of thinking or language, or all these at the same time, will entail a history and come with connotations and rules of use and can bring up feelings [44].

2.4. Cultural–Historical Wholeness Approach—Visual Model

The proposed conceptual framework also leans on Hedegaard's cultural–historical wholeness approach [45], where a social situation of development occurs in an activity setting at a particular time laden with motives and demands, resulting in crises and/or development within institutional practices. Mariane Hedegaard is located within a cultural–historical approach to learning and development, where she has explored ideas in a dynamic relationship with other researchers. First and foremost, she is inspired by Vygotsky and the Russian cultural–historical legacy. In her work, Hedegaard also used arguments from authors within Childhood Studies. These perspectives allow her to study contemporary society and the way society organises and conditions the lives of children and families. Central to her theorisation is the recognition of the lives of the contemporary child living across cultural trajectories, such as families and institutions (e.g., kindergartens). She argued that children and families must be studied in a localised time and space to take individual variability and contexts into consideration [46,47]. Hedegaard's major contribution has been to show how institutional practices, such as family life, day care (kindergarten) and school, mediate societal priorities. The wholeness approach allows us to analyse historically accumulated institutional practices.

Hedegaard visualised her thinking with a model for analysis that considered three perspectives: individual, institutional and societal [24,48]. With this model, she explained a wholeness approach, with an emphasis on visualising how children may participate in several institutional settings, such as home and kindergarten (see Figure 1). We have taken these three perspectives, as well as her emphasis on the variety of different institutions and demands in which a child can move in-between. Moreover, we recognise her work on motives, demands and conflicts that will be played out in different activity settings and processes.

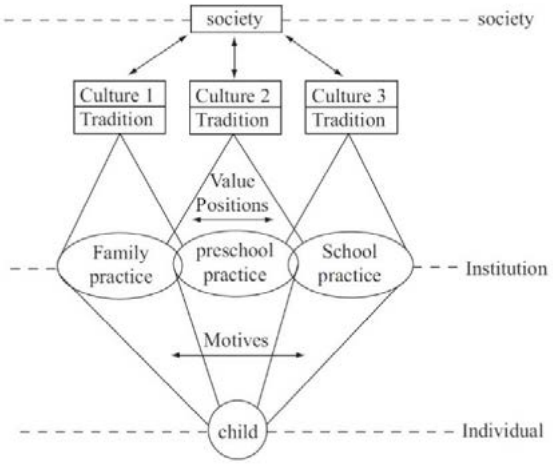


Figure 1. Hedegaard's cultural–historical wholeness visual model. Reprinted with permission from Mariane Hedegaard (2008). Copyright 2008 Mariane Hedegaard.

Hedegaard also revisits Vygotsky's concept of *crisis* in child development [25], a concept helpful in understanding inevitable events in human life connected to time and development. Crises arise as conflictual relations between a child's motives and the social situation of the child. Hedegaard argues that new developmental periods come to life through children's experiences of conflicting intentions, leading to crises. She mentions that a crisis may be noticed when an infant starts to walk. With the new bodily skills, a child becomes able to move independently. Consequently, new demands are put on the child's caregiver(s) for the child's safety and for the unpredictability of what can happen when the child can explore the world with its artefacts and local places. When the child becomes more skilful, both the caregiver(s) and the child may enter into a conflict between obeying the caregiver(s) and allowing the child to explore the environment. Related to our effort to strengthen intentional intergenerational programmes towards a more sustainable future, the concept of crisis can open up understandings of how everyday life crises put necessary demands and conflicts into play, which could, if dealt with in sound ways, build resilience and growth in both child and caregiver(s). We anticipate that intergenerational programmes and practices have the potential to build resilience and growth because more life experience, knowledge and skills can come into play. These knowledge and skills of different generations will vary and can broaden and offer resources to activities, as well as bring new demands and conflicts to the situation, so new moments of learning can take place.

We have also taken these into consideration in our conceptualisation by recognising that intergenerational practices, programmes and processes will have contextual and historical connotations because artefacts can carry meanings and history, and that time is a continuum that generations continuously journey on. Intergenerationality necessitates a consideration of the events of the past, present and the future. There should be an acknowledgement that, while time is continuous and never-ending, it is fleeting and temporary. Intergenerational thinking should always consider the changes that time brings. One such instance is the transitory nature of age, as also pointed out by Vygotsky [36]. Thus, history and time are at the core of our conceptual work. Including these perspectives allows for a critical examination of assumptions surrounding intergenerational programmes in the context of specific historical and cultural settings and institutional practices, as well as the dynamic roles and positions of all actors within the system.

2.5. Childhood Studies and Glocal Understandings

Our conceptualisation also subscribes to the theoretical underpinnings of the UN Convention of the Rights of the Child (UNCRC) [49], which is one of the guiding forces of concepts in the new sociologies of childhood, also referred to as Childhood Studies, as well as implemented in most frameworks and guidelines for early childhood settings around the world, including the Norwegian framework plan for kindergartens [16]. Using the UNCRC foregrounds a consideration of uncertainties and paradoxes in identifying the best interests of children [50].

Childhood Studies is a field of study that examines contemporary and global challenges and issues concerning "the child", "children" and "childhood". Children's competencies, agency, voices and rights are central to this field. The field is critical of the normative view of children, childhood and human life stages, where children are viewed as human "becomings", which connotes an incompleteness and instability that is attained in adulthood [51]. Theorisations of children as both human "beings" and "becomings" [52] emerged from Childhood Studies that emphasise both childhood and adulthood as temporal life stages that are subject to changes over time and are both fundamentally unstable and incomplete.

While this may put our conceptualisation in the middle of seemingly opposing ontologies, where Childhood Studies argues for more localised study of children to see the variability of individual context [53–56] and Cultural–Historical perspectives [31] are considered part of the "grand theories of child development" [46] due to a more generalised

and standardised view of the development of children, we will reiterate the need for interdisciplinary understandings in this conceptualisation of intergenerational programmes, as it goes beyond children's development and touches on institutional and societal conditions in place.

Rather than seeing developmental psychology, sociology and anthropology as opposing fields, our conceptualisation subscribes to the concept of 'glocalisation'—that is, an understanding of both global and local conditions and considerations [57]. Ødegaard [57] has made a strong case for a glocal view, which she applied to teachers and early childhood programmes, whereby globalisation does not necessarily penetrate every aspect of the local culture, local traditions and views in the development of models and programmes. She writes that, "in spite of globalisation, local conditions can be adopted, held on to and transformed. Local models and varieties across a nation can also put pressure on the development of local models" [57] (p. 44). As such, the glocal view of intergenerational programmes demands both global and local awareness, knowledge and perspectives that necessitate a localised study to see the variability of individual contexts alongside grander and more macro views offered by grand theories of child development. An example of these local particularities are terminologies used. While global research indicates that "older adults" is a more respectful terminology to refer to members of the older generation ages 50 years and above [58–60], this terminology causes confusion in Norway, where the terminology "elderly" is acceptable and more widely used. Another example particular to the Norwegian context is the preference to use "generasjonsmøter", which means generations meeting up and being together to engage in dialogues and shared experiences, instead of the term "intergenerational programmes", as the former carries a more culturally nuanced understanding and meaning. In this light, this conceptual visual representation is not static and can be adjusted to have fewer or more elements in play, using culturally appropriate terminologies specific to local settings, countries or contexts, which could be realised as data are generated. This makes space for applicability to other contexts and countries and, as such, for future research in both Western and non-Western studies. For the purposes of this paper, however, the term "elderly" is used concurrently and alternatively with "older adults", and "intergenerational programmes" are used to cater to broader audiences.

2.6. Characterisations of Intergenerational Programmes in the Field of Early Childhood Education and Care (ECEC)

Before we present our conceptualisation, there is a need to discuss what intergenerational programmes are and the history behind them. Intergenerational programmes came about as a response to several societal factors that affected the lives of children and adults, resulting in changes in demographic trends, family structures and residential arrangements that have been observed by various societies in the past few decades [61]. These changes, in part due to globalisation efforts and economic pressures, have led to societal inequalities that are still seen to this day. Migration, both internal and external, has economic roots and is considered both a symbol of inequality and of the growth and development of cities and urban areas [8]. The diaspora of people from rural to urban areas, as well as within and across countries due to industrialisation and urbanization, has been a global phenomenon that has created both opportunities and societal difficulties that need to be addressed. The diaspora has led many families to migrate from their hometowns to places where there are available jobs, resulting in generations frequently becoming distanced or segregated from one another, particularly younger and older people.

Additionally, we now have better technologies for communicating and sharing information with one another, as well as for caring for each other. Due to improved medical technologies and better access to social aid and medical care, the elderly are living longer in most countries [21,62,63], but not necessarily living better, as reports of social isolation and loneliness in the elderly population increase [61]. In fact, due to societal changes, older adults have less contact with young children in many countries because older adults live in old peoples' homes and many young children spend most of their time in day care

centres, pre-schools and schools [6]. These societal trends, coupled with an increase in age-segregated communities and a decrease in intergenerational exchange, created the need for the development of intergenerational programmes.

Intergenerational programmes are systemic efforts to bring different generations together. They can be understood as activities or programmes driven by institutional policies that increase cooperation, interaction or exchange between or among different life-stage cohorts. They involve the sharing of skills, knowledge or experience to promote mutual benefits and foster relationships. Further, these programmes are conceptualised with aims to meet the needs of both populations by fostering growth, understanding and friendship between generations, and they are enacted within the best interests of both populations who are considered more vulnerable and dependent on society: young children and the elderly.

Over the past few decades, a growing body of literature has described the growing age separation within societies [64]. Although older adults live longer, they are more prone to being socially isolated [65]. Younger children in some countries have been found to have little opportunity to interact with older adults [6]. This pattern of increasing age segregation has been linked to a decline in life satisfaction among older persons, and an increase in negative stereotypes towards the aged and ageing among younger people. As the Together Old and Young (TOY) Consortium found:

"In the Western world, children live in a separate world from older people. Apart from family members, they do not come into contact with older people. Therefore, this is a way of bringing them into contact with older people, other than grandparents. For older people, it brings something new, brings life to them."—Leila, coordinator, "The Dice: young meet old", the Netherlands [6] (p. 3).

Intergenerational programmes have three main criteria: (1) they involve more than one generation; (2) they are planned on purpose for progressive, mutually beneficial learning; and (3) they promote greater understanding and respect between generations and, consequently, they create community cohesion [6,66].

In the field of ECEC, intergenerational engagements and programmes are intentional systemic initiatives to bring younger children and older adults together within and across institutions through practices and activities that promote the learning and development of all involved [66,67]. These initiatives aim to bring together practitioners, academics and policy makers to create purposeful, intentional and continuing exchange of learning and resources between older and younger generations [64]. This characterisation situates intergenerational engagements and programmes in social, cultural and historical settings with traditions, values and norms, wherein actors participate with different motives and positions of power within activities and practices, and with the use of cultural artefacts or tools. Intergenerational programmes can also be characterised as opportunities for children and adults to develop through social interactions with different people in different institutions through different practices and activities. In doing so, children and adults are given a venue to appropriate new competencies, motives and intentions by being faced with possible crises of transition and transformation. Research studies acknowledge the benefits of having intergenerational activities [3,21,22,68]. It has been found that all parties who take part in intergenerational activities may gain a lot from them. EuroChild [69] listed some of the benefits that young children, senior citizens and the community gain from intergenerational activities. These include young children learning about community traditions, local history and values, and the elderly feeling more valued and useful to society. There is also improvement in mental and physical health, as well as a reduction in fears and prejudices within society. Intergenerational programmes can also contribute to efforts towards healthy, safe and age-friendly societies to combat increasing loneliness and social isolation. In this, governments play a vital role in developing opportunities for generational meetings in various gathering places [70].

In the next section, we present our conceptual model of intentional intergenerational programmes that involve early childhood institutions. We have used these characterisations of intergenerational programmes in our conceptualisation.

3. A Visual Representation of Elements of Intergenerational Programmes in Kindergartens

In this section, we elaborate on our conceptual framework by presenting it in full macro view and later breaking it down per element.

Figure 2 illustrates a full diagram of the conceptual visual representation, which includes different interacting elements of intergenerational programmes in kindergartens. Each element is considered a concept in its own right—that is, if taken as an individual unit, it could function differently in relation to other elements in different settings and contexts. These elements and their relationships are elaborated on in the succeeding section of the paper.

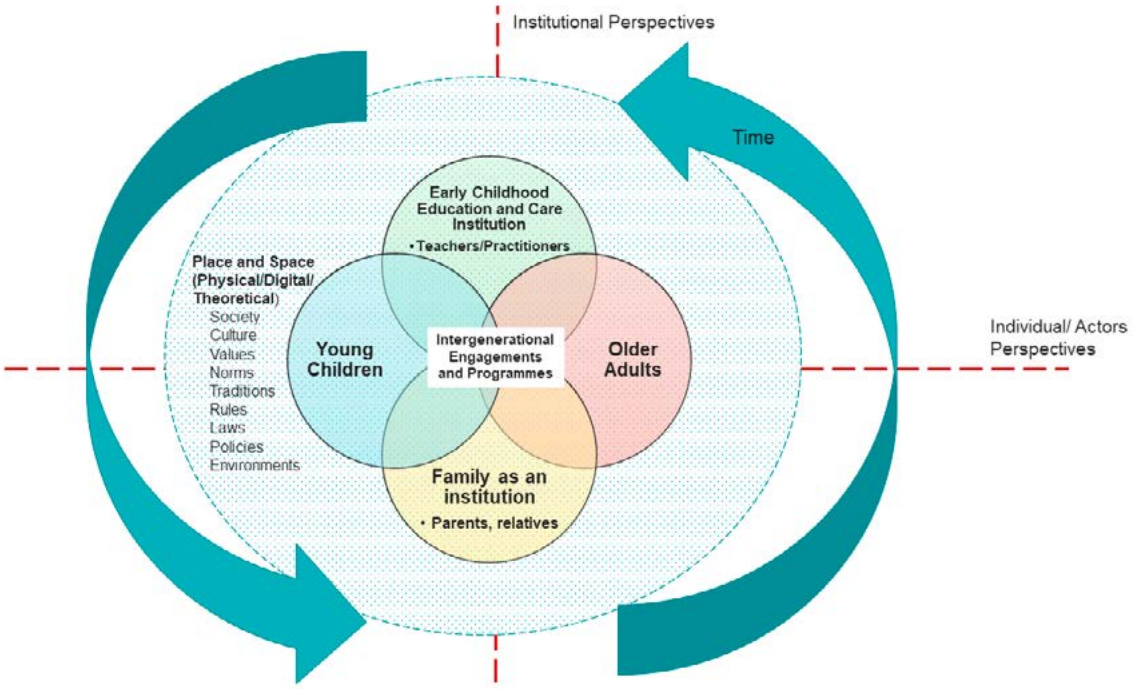


Figure 2. Conceptualisation of intergenerational programmes in kindergartens.

As previously discussed, this conceptualisation took inspiration from Mariane Hedegaard's [24,71] model, where three perspectives are present—individual, institutional and societal. These three perspectives are present in this conceptualisation. The first two interacting elements lying on the x axis, represented by the red horizontal broken line, make up the individual/actor perspectives. The two interacting elements lying on the y axis, represented by the red vertical broken line, include institutional perspectives. The societal perspective is represented by a dotted circle outside the four overlapping circles of the elements. Small dots penetrate the overlapping circles to visually represent the implications this has for the other elements.

In this visual representation, the interactions and relations of each conceptual element in play are highlighted. Venn circles provide a fitting visualisation of the elements and their relations and interactions, as the congruent or conflicting overlaps of these conceptual elements that we propose are the spaces where social sustainability occurs. The overlapping and intersecting spaces are the sites where dialectical processes of crisis/conflicts of conditions and demands among the different elements happen, and hence should be considered spaces for opportunities for learning, development and collaborations. As previously mentioned, this conceptual framework can have more or less interacting Venn

circles representing other generations/age-cohorts and institutions to fit specific contexts and communities. For the purposes of this preliminary presentation, our focus will be on representing interactions that involve the youngest and oldest generations in early childhood institutions.

3.1. Individual Perspectives: Young Children and Older Adults

To understand intergenerational programmes in kindergartens and highlight social sustainability as one of the outcomes, interactions between younger children and older adults is vital. As such, these are the first two elements in the conceptual visual representation—two separate yet interacting individual/actor perspectives, characterised by two overlapping Venn circles. The blue circle represents young children, while the red circle represents older adults (see Figure 3).

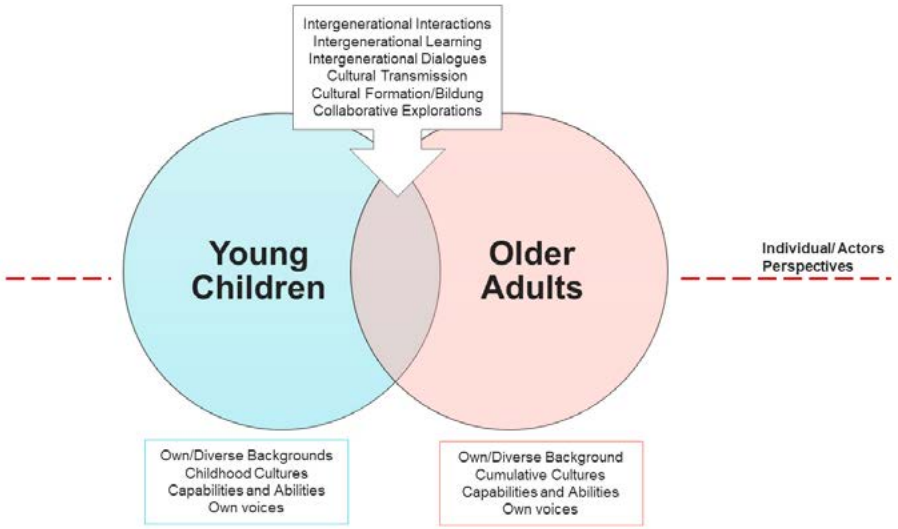


Figure 3. Individual perspectives: younger children and older adults.

In this conceptualisation, the plurality and diversity of backgrounds, cumulative cultures and experiences accumulated throughout their years and unique voices are acknowledged. Both age groups have their own unique cultures from which the other age group could benefit, and both age groups seek empowerment from their positions as dependents of society [6]. On the other hand, both young children and older adults are viewed in a socio-cultural context, where they prosper and make meaning through interactions with their environment and each other [72]. As such, they are viewed as active social agents who participate in knowledge construction and the daily experiences of childhood [23,73–77].

Additionally, this conceptualisation views children and older adults as both beings and becomings, subscribing to the argument that both children and adults experience unstable lives that are subject to change over time [52]. The temporality of time is central to the view that "perceiving children as 'being and becoming' does not decrease children's agency, but increases it, as the onus of their agency is in both the present and future" [52] (p. 311). As such, young children are deemed capable and active authors of their own narratives and lived experiences [76], as they participate in activities in different institutions. As such, this conceptualisation highlights young children's ability to voice their thoughts and participate in matters that involve them [49], and it takes into account their perspectives and participation within activity systems and institutions [24].

Congruently, this conceptualisation recognises older adults' wisdom and strengths in that they could contribute to society, most especially to younger children. At this point, it is noteworthy that, in this conceptualisation, the terminology "older adults" denotes people who are 50 years old and above. This age group stratification is preferred because it is more inclusive of people who have become grandparents in their younger senior years.

The overlap of the Venn circles in Figure 3 is a representation of young children's and older adults' relational and interactional relationships. This visualisation supports Alanen's [23,77] view of intergenerationality—beyond seeing generations as a system of structure categorised by age, intergenerationality necessarily entails a relational view of generations.

The intersection in the middle represents a space for intergenerational interactions, learning and cultural transmission between actors. While it can also be a space where individual views, voices and differences collide and conflict, it is an opportunity for dialogues between actors or agents to share their own knowledge about the world—older adults about their experiences with food, animals, navigating landscapes, etc., and younger children as experts in navigating digital tools, being more native to digital spaces than some older adults. As such, this is an opportunity for generations to impart their knowledge to each other, creating a community and cycle of lifelong learners and lifelong learning with shared knowledge that could be sustained for years to come. Succinctly, this contributes to the tenets of social sustainability.

3.2. Institutional Perspectives: ECEC Institutions and the Family

The next intergenerational elements under consideration are institutional perspectives, represented by another set of interacting Venn circles lying vertically on the y axis (see Figure 4). In this representation, the green circle represents ECEC institutions that may be known in more culturally appropriate terminologies in specific contexts (i.e., kindergartens or *barnehager* in Norway; preschool or nursery in the Philippines). The yellow circle represents the family as an institution. It is within these institutions that children in their early years and older adults participate the most in their everyday lives. These institutions are the sites that provide opportunities for young children's and older adults' voices to be heard and for their actions to be recognised, and these institutions are spaces and places where they belong and are included. This conceptualisation situates cooperation actors, such as early years practitioners and parents, in these institutions, an interaction that is most often referred to as home–school partnerships. Other institutions can be included in the representation, such as elderly care institutions but, for the purposes of this paper, only early childhood institutions and families are included.

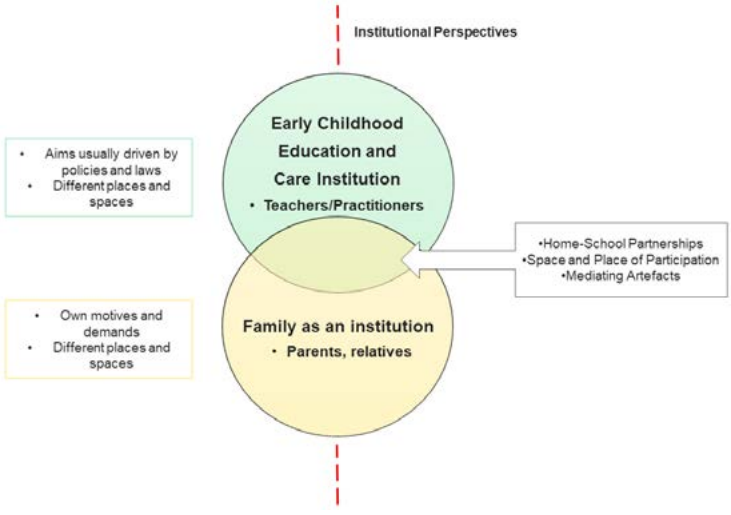


Figure 4. Institutional perspectives: kindergartens and families.

Family institutions and early childhood institutions, located in specific physical places, have specific motives and demands that they aim to address and fulfil under specific policies and laws through different activities and practices. Activities and social situations within and across early childhood institutional settings and present learning and development through participation in institutional practice and across different institutions (i.e.,

kindergartens, families, etc.) [71]. These activities are guided by cultural and historical practices and traditions, and are most times mediated by cultural artefacts. In addition, as these institutions are widely considered part of communities, Barbara Rogoff's [28] guided participation in community settings is also relevant, where human development is a cultural process involving participation in institutional or community practices and traditions [28].

3.3. Societal Perspectives: Physical, Digital and Theoretical Places and Spaces

As has already been mentioned, physical, digital and theoretical places and spaces—collectively referred to as societal perspectives—also need to be represented. Their components include cultures, values, norms, traditions, rules, laws, policies and physical environments, as well as global discourses in which intergenerational programmes are situated. This is represented by a big dotted outer circle that penetrates the Venn circles nestled within it to visually represent its implications or influence on the other elements (see Figure 5).

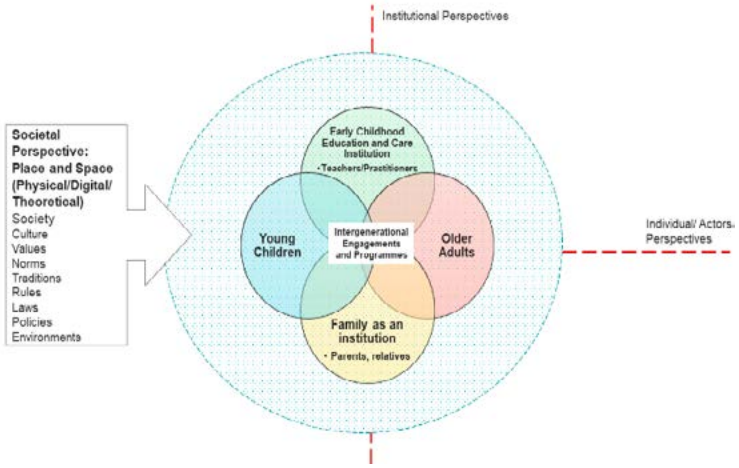


Figure 5. Societal perspectives: physical, digital and theoretical places and spaces.

In this conceptualisation, places and spaces are used concurrently. However, the main difference lies in places being physically bound by a certain location, whereas spaces can take up a more abstract location. This conceptualisation subscribes to Harrison and Dourish's principle that "space is the opportunity; place is the understood reality" [78] (p. 67). In their paper, Harrison and Dourish discuss the intricacies of these two concepts and how difficult it is to differentiate them from each other. They write that a place is a space where behaviours are formed and enacted within a specific and contextualised set of cultural understandings and norms [78]. They have argued that everything in this world is located in a space that is tied up to a specific place; hence, both have implications to designs [78]. Consequently, we understand physical places in terms of specific geographical locations with corresponding cultures, norms and values. Linked with these places are the rules, policies and guidelines governing programmes and activities within these locations. Therefore, the role of governments and good governance are considered vital in understanding intergenerational programmes in early childhood settings.

The concept of space is broader. Harrison and Dourish [78] offered a definition of space as "the structure of the world; the three-dimensional environment in which objects and events occur, and in which they have relative position and direction" (p. 68). Space has also been used as a metaphor in computing, media and virtual platforms, which presents opportunities for collaborations and connections. As such, in this conceptualisation, digital spaces are included in the recognition of shifting social topologies mediated by digital tools that enable intergenerational interactions in "cyberspace". Technological advances make it easier for young children to gather and share information. In a generation known as

the interactive information age, children are more exposed to technological tools such as the computer, internet, mobile smartphones and tablets that enable them to gather more information and communicate faster. In the EU Kids Online [79] research project final report, the authors found that more children are using the internet and younger children are getting online. These findings characterise young children as digital natives and pose both opportunities and benefits as well as potential risks. Nowadays, some early childhood settings have included the use of digital technologies such as tablets and smartboards within the guidelines of their national early childhood curricula. Becoming responsible for digital citizens navigating this space is vital and, as contemporary parents and practitioners seem to see value in allowing their young children to use digital technologies, there is a need for adults to further build up their own digital social skills [80], making it a shared space for learning and development.

In terms of theoretical spaces, intergenerational programmes could be situated within scientific fields that may form the basis of how activities and practices are to be implemented. One such example would be the employment of the tenets of the UN Convention on the Rights of the Child [49], which always require that children's rights be upheld as intergenerational programmes are planned and implemented. Ratified by most nations, the UNCRC has 54 guiding articles that could be categorised into four groups—survival, development, protection and participation. The UNCRC espouses the view of children as competent, strong, active, participatory, meaning-makers and fellow citizens, and is the guiding force behind rights-based participation. Children's participation could be practised and realised in the family, in alternative care, in healthcare, in education, in play, recreation, sport and cultural activities, in the media, in the workplace, in judicial proceedings and in situations of violence, as long as the basic requirements for effective and ethical participation, as prescribed by the Committee on the Rights of the Child, are actively acknowledged and followed [81].

3.4. Time

Another element that needs to be considered in the understanding of intergenerational programmes in early years settings is the concept of time. In this conceptualisation, time characterises the many changes and histories brought about by its temporal, continuous and infinite nature, visually represented by two circular arrows surrounding the interacting Venn circles and the dotted circle (see Figure 6). Time is core to understanding generational issues, as older adults were children once, and both children and adults will continuously become older in this infinite continuum. This upholds the view of children and older adults as both 'being' and 'becoming' due to the temporal nature of time [52], as has already been discussed in earlier parts of this text. Additionally, in light of cross-sections of time, historical periods, such as the ongoing global pandemic due to the COVID-19 virus and its impact on intergenerational programmes and interactions, can be examined. As an example, this period saw a decrease in the frequency of physical social interactions and an increase in the use of digital technologies to mediate intergenerational interactions [82]. Online services, such as Zoom or FaceTime, offer ways to strengthen social contacts between generations, while still being able to enjoy activities such as reading books or watching movies together [83]. Still, even as technology seemingly mediates intergenerational relations during the time of the pandemic, there are inequalities and disparities exacerbated by access discourses due to variables such as age, ethnicity, race or socioeconomic status that need to be addressed [84].

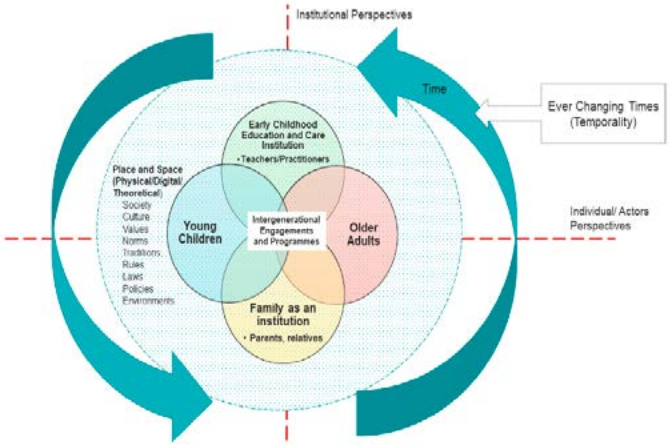


Figure 6. Time.

Vygotsky's [31] concept of the ZPD and critical periods of crises also reflect the temporality of time and the changes it brings. In addition, as humans develop, institutions, activities and programmes also undergo change over time, which has also been emphasised by Hedegaard in her work:

Children develop through participating in everyday activities in societal institutions, but neither society nor its institutions (i.e., families, kindergartens, schools, youth clubs, etc.) are static; rather, they change over time in a dynamic interaction between a person's activities, institutional practice, societal traditions, discourse and material conditions. Several types of institutional practices in a child's social situation influence that child's life and development. At the same time, children's development can be seen as socio-cultural tracks through different institutions. Children's development is marked by crises, which are created when change occurs in a child's social situation via biological changes, changes in everyday life activities and relations to other persons or changes in material conditions. [46] (p. 72).

As cultural–historical theory is considered a "living theory and an activist and interventionist theory" [85], in that it is in itself constantly evolving and developing over time, taking time into consideration is essential. It allows an examination of past occurrences in relation to the present and the future, which characterises processes of transition and transformation that could impact conceptualisations, plans, designs and the implementation of intergenerational programmes.

3.5. Congruent and Conflicting Elemental Overlaps

The overlaps of the Venn circles (white area) represent the dynamic interactions of each element (see Figure 7). For analysis, the data generated could reveal bigger overlaps, indicating the congruence of elements. Additionally, data could also indicate conflicts, which could be represented by smaller overlaps as an area that could be focused on for future programme designs. As such, in this conceptualisation, this site is a space for both conflicts and opportunities. It is also a space where the following can be visualised, operationalised and analysed: aims, motives and outcomes, tools and mediating artefacts, division of labour and activities and practices within intergenerational programmes.

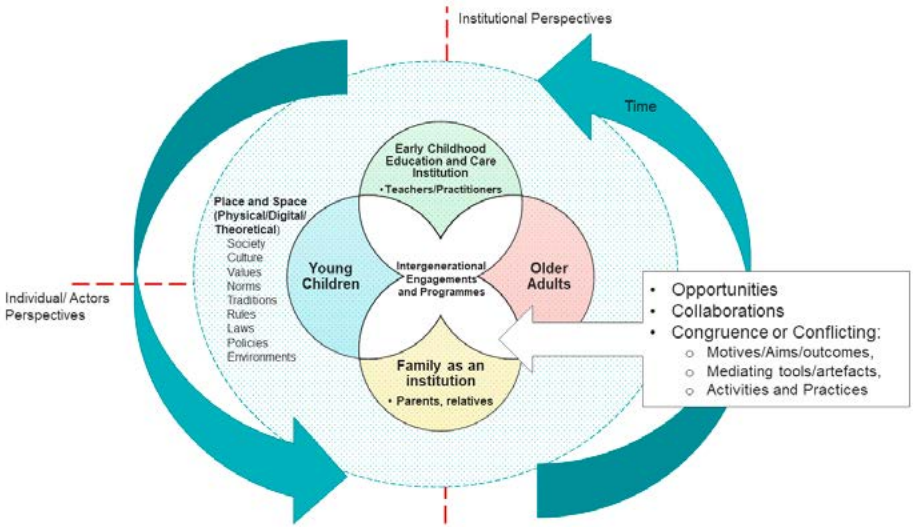


Figure 7. The overlaps: conflicts and opportunities.

While these interactions can represent intergenerational solidarity resulting from the active participation and collaboration of all elements, this space can also represent potential conflicts stemming from the diversity of actors, institutions and their backgrounds (age, ethnicity, context, culture(s), values, etc.). These overlaps and interactions imply that intergenerational interactions may not always yield positive outcomes. These spaces pose an opportunity to elaborate on discourses of intergenerational conflicts that have been identified and problematised over the years, including, but not limited to, concerns about intergenerational transmissions of the cycle of violence [86], economic inequalities observed among age-cohorts due to policies that seem to benefit older generations, and which were not addressed by intergenerational mobility efforts [87–89] and other concerns.

Consequently, these overlaps also represent opportunities for collaborative explorations in pedagogical contexts [29,30], intergenerational dialogues [5] and an arena for cultural formation, or Bildung, in early childhood settings [13,90]; these are concepts that may be deemed normative but should rather be considered transformative. Within this framework, intergenerational programmes are to be understood as initiatives to address diversity, participation and inclusion concerns and conflicts that lead towards societies that are relational, intentional and, hence, socially sustainable (see Figure 8).

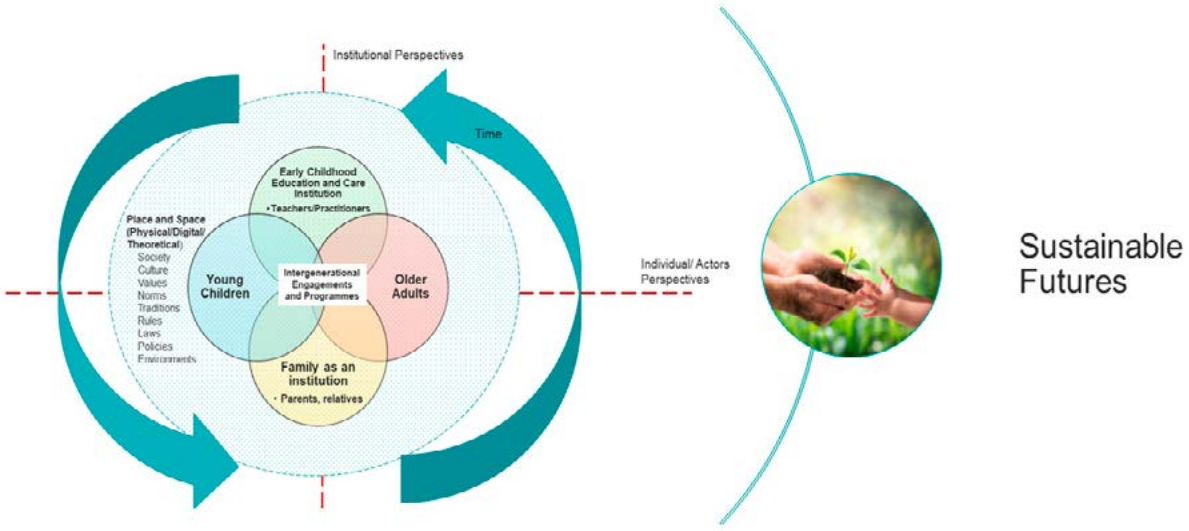


Figure 8. Intergenerational programmes towards sustainable futures.

4. Discussion: Intentional Inclusion of Intergenerational Programmes towards Social Sustainability

Our conceptual framework highlights an intentional, relational and glocal understanding of intergenerational engagements and programmes leading to a more sustainable future. Intentionality comes from careful consideration of each element that makes up these systematic initiatives. Being able to visualise the interactions and relationships of each element allows us to reflect on how these initiatives could be implemented and further improved in accordance with localised interpretations. As an example of how it can be utilised, we present an example below that reflects data generated from the Philippines during the pandemic lockdown from March to August 2020. Pseudonyms were used to protect the participants' identities.

In the example in Figure 9, we can visualise an intergenerational engagement within a family setting in a province in the Philippines. Data for this example were photos and videos that were sent to us with consent to use for our research. We can see that it is shaped differently because the ECEC institution, locally referred to as preschool, seemingly did not have a role in the intergenerational engagement with a child named Miguel and his maternal grandparents, whom he calls Lolo Jose (grandfather) and Lola Lita (grandmother), during this time. However, Miguel's mother, Mommy Stephanie, and his aunt, Tita Honey, acted as mediators and agents for Miguel and his grandparents' activities to happen by providing the materials they needed for the activities. They reported shared activities using different materials that were somewhat different from what they had been used to performing together prior to the pandemic lockdown, such as farming and chores. Miguel, Lolo Jose and Lola Linda have also reported eating, walking and bike-riding with Mommy Stephanie and Tita Honey. These activities utilise materials and spaces outdoors and in nature; this is reportedly something that is new for them, as their shared activity prior to the pandemic lockdown usually involved watching television with each other. Their experiences revealed an intergenerational engagement that occurs within multigenerational households that are prevalent in the Philippines [91].

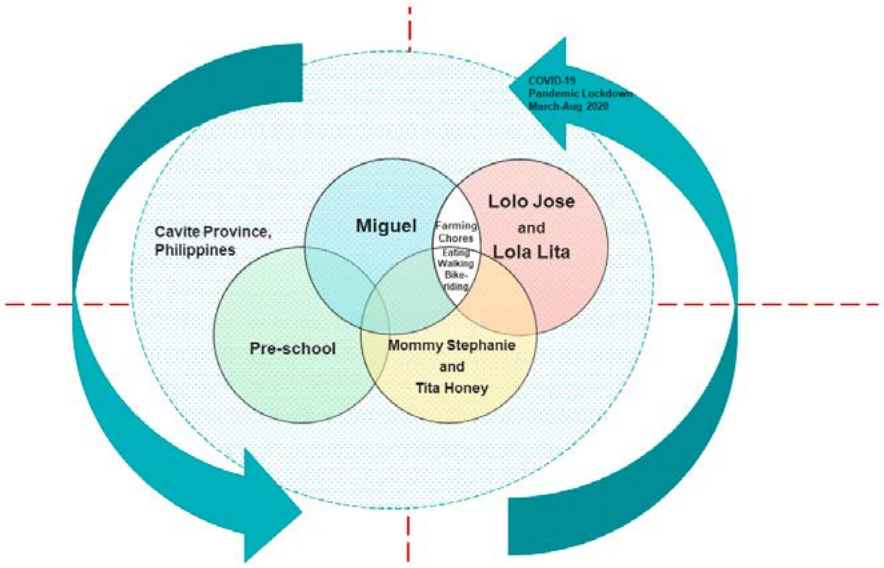


Figure 9. Application example: data generated from the Philippines.

We can go further in the analysis of this example using the data generated from the Philippines by exploring the visual framework before and after the pandemic lockdown to see patterns of similarities and differences in interactions. Maybe there is a need to add more circles to represent other actors or institutions. Maybe there were instances when Miguel's preschool had initiatives that promoted intergenerational engagement between him and his grandparents prior to the pandemic lockdown. If there were and are none, then

we identified Miguel's preschool as a place for the promotion of intergenerational work. We can ask further questions to investigate and understand this finding, perhaps by looking at the data with indigenous interpretations, as suggested by Oropilla and Guadana [92]. We can also look at several of the elements, such as conflicts in demands and motives in planning the activities, as well as the materials and places used to deepen the analysis of this example.

Through this short example, we have briefly demonstrated how this visual conceptual framework can be used for analysis. The example provided was from the family setting, but we will also be applying this framework to analyse data generated in Norwegian kindergartens. We envision results that will have implications for pedagogical practices that go beyond the institution to community settings. In terms of limitations, as this conceptual framework is still at an exploratory stage, we acknowledge that it could evolve over time as we generate more data. It could also benefit from a systematic review of the literature to scope out other existing visual models of intergenerational engagements and programmes. Additionally, we acknowledge that there may be contexts that might not fit within our framework, as we have limited our scope to the field of ECEC. As such, our framework only currently accounts for the actors and institutions that act within this field.

Ultimately, we hope to highlight an understanding of intergenerational engagements and programmes as a dynamic and complex relational and interactional system of actors and institutions situated in a specific place within a particular time. We point to initiatives that necessitate collaborations and dialogues that lead to shared and common goals of working together to create more intentional and meaningful interactions between young children and older adults. We also point to the need to systematically address cycles of intergenerational conflicts and inequalities that may have been built up and transmitted over the years. This requires shared responsibility and equal involvement of all actors, institutions and societies to address past and current issues of social sustainability that just one generation cannot bear on its own, as well as for the next generations and beyond. As such, this conceptualisation puts the onus of social sustainability on all actors and institutions involved, not just on one generation or sector.

This is in support of Boldermo and Ødegaard [93] in their review of literature on social sustainability, where they found that some research studies paint a picture of children as competent problem-solvers who can take on the issues of social sustainability. They have raised concerns that this might be giving too much credit to children's competence, as it implies too much responsibility on children's shoulders [93]. Their recommendation of a more (inter)generational solution to social sustainability issues is supported by this conceptualisation of intergenerational programmes. This conceptual work is also in support of Davis' [14] work that social sustainability entails having a vision of fairness and justice for all, as well as Vallance, Perkins and Dixon's [20] call to find new ways of living, working and cooperating with each other to strengthen social capital and participation rights.

While the inclusion of intergenerational programmes in early childhood settings might not be new or innovative, there is a need to be more intentional in this inclusion. We know that some intergenerational practices are happening, we know that these are important, and yet we are not talking about them and, sometimes, they are not planned intentionally. This is a paradox that we must examine and address. In this paper, we argue that we must talk about intergenerational solidarity on all levels, that we must include ECEC settings and that it must be deliberate and by design. ECEC is a sector that plays an important role in achieving sustainable goals [14] and contributing to building sustainable societies [15]. As such, we must contribute to the identified space for more intergenerational initiatives between young children and older adults in this field [17] as a response to the call for reimagining early childhood education for social sustainability in the future.

Further, this conceptualisation supports UN General Assembly resolution 73/144 [94] that explicitly states that UN member states are encouraged to invest in inclusive, family oriented policies and programmes, including early childhood development and education towards advancing social integration and intergenerational solidarity to support the

implementation of the 2030 Sustainable Agenda. Intergenerational solidarity is needed to achieve several UN Sustainable Development Goals, including but not limited to the following—SDG 1 No Poverty, SDG 2 Zero Hunger, SDG 3 Good Health and Well-Being, SDG 4 Quality Education and SDG 16 Peace, Justice and Strong Institutions [94].

5. Conclusions

This concept paper proposes a conceptual framework for understanding intergenerational programmes as intentional initiatives that involve the collaboration of several actors and elements that can contribute to the aims of social sustainability. This conceptualisation creates space for renewed understanding and greater awareness of intergenerational engagements and programmes, as well as the elements involved in making these initiatives happen in ECEC institutions. By thinking of each element as being in constant interaction with each other, we highlight the dynamic and relational nature of these engagements, which need to be understood with both global and local knowledge. This promotes intentional consideration and planning to create more possibilities for intergenerational collaborations, albeit with possible conflicts and challenges. Additionally, this frame promotes a transformative view of having more intergenerational opportunities by design and not by chance, as it helps us think of ways to have age-inclusive societies and programmes with intentional designs, where different actors and institutions can participate. In doing so, we also address underlying conflicts, disparities and inequalities that hinder collaborations between actors and prevent intergenerational initiatives from happening.

Now that space for the inclusion of intergenerational programmes in early childhood settings has been identified and articulated, the way forward is to make this space bigger. This strengthens the call for reimagining the future we want. We want a future of togetherness, of conversations, of collaborations, of broader understandings and of shared knowledge and experiences, despite conflicts and challenges. We want spaces and places where different generations can both belong and prosper. We want these initiatives to be deliberate, intentional and by design. In line with *The Lancet* report discussing a future for the world's children [95], we can continue to think of ways to promote intergenerational solidarity, not just through translation into play activities, pedagogical practices and programmes, but also through space, materials and infrastructure designs. In this way, we are truly reimagining sustainable futures for children, their families, the elderly and communities, which is crucial as the world continues to manifest changes that we must be prepared for.

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Article

(Re)imagining Entangled Sustainability: A Human and Nonhuman Theorisation of Belonging to Safeguard Sustainability's Holism

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Abstract: After years of research and theorisation connected to education for sustainable development, the holistic core of sustainability seems to have disappeared within the frames of the social, environmental and economic pillars. This article suggests a post-humanism inspired understanding of a sense of belonging. Even though the phenomenon of belonging is ascribed to social sustainability, the post-human theoretical toolkit challenges the humanism-based understanding of a sense of belonging as a human-related phenomenon. Using Deleuze and Guattari's rhizome and affect concepts and Barad's concept of intra-action, we show the connections between the human and nonhuman elements constituting each other in our world. We conclude with the implications that using post-human language (to understand belonging) may have for policy, Early Childhood Education and care (ECEC) practice and theory.

Keywords: sustainability's pillars; sense of belonging; early childhood education; intra-action; human–nonhuman

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1. Introduction

Sustainability is a goal that implies changes in education practice [1]. Ideally, diverse dimensions of sustainability, systematised as environmental, economic, institutional, and social [2], will enter the education sector and be practised in the daily institutional life of early childhood education and care (ECEC) [3,4]. Nevertheless, within the discourse on (early childhood) education for sustainable development, it is the ecological aspect that still seems to receive the most attention. This has led researchers and educators to argue for a more balanced approach that considers social aspects that are connected to migration, social inclusion [5–7], social justice and human rights [8], as well as citizenship [3,4,8–11].

In this paper, we put forward a suggestion that enables possibilities of balancing unequal amounts of knowledge generated within different pillars of sustainability. By using post-humanism inspired theoretical toolkits, we try to describe and reflect on the concept of the sense of belonging (ascribed to the social pillar of sustainability) and show how such theorisation invites the expertise and interest of other pillars. We thereby suggest a way of balancing the education for sustainable development discourse so that it is not about generating more knowledge within a particular pillar of sustainability, which may enhance competition among them [2]. To do so, we experiment with theoretical tools that can enable an interdisciplinary and holistic thinking about the concept of sustainability [2]. Current distinctions between particular pillars of sustainability (environmental, economic and social) are so well established that even interdisciplinarity connected to sustainability research emerges within rather than across the pillars. By theorising the sense of belonging with the use of post-human inspirations, we try to open up this phenomenon ascribed to social sustainability [7,8,12,13] to economic and environmental aspects.

In order to realise this, the article begins with a discussion of the paradox of dividing the pillars of sustainability in order to open interdisciplinarity and holistic thinking. This is followed by a discussion that illustrates some of the ways in which sociocultural theories, anchored in humanism may be considered as viewing a sense of belonging as a human–human phenomenon, where random nonhuman elements are eventually enabled by and for humans. Next, thinking with post-humanism we explore social sustainability through a sense of belonging that appreciates the associations between human and nonhuman elements, whilst allowing for connections to be made between diverse aspects originally related to economic or environmental pillars of sustainability. The distinct three-pillar model of sustainability has been criticised for lacking theoretical justification [2]. We are, therefore, proposing theoretical toolkits that enable connections between and across these pillars as inseparable aspects. Even though the theoretical toolkits we present may also inspire justification of the co-existence of the three pillars, we focus on showing how a sense of belonging (ascribed to social sustainability) may be theoretically extended or re-written in ways that show its inseparability from the environment and economic aspects. As this paper is intended for policymakers, academics and practitioners, we try to illustrate our descriptions with practical examples and draw conclusions relevant for policy, theory and practice.

2. The 'Uneasy Union' of Three Pillars as Inhibiting a Holistic Reflection

Purvis et al. [2] detect origins and usage of the concept of sustainable development back in the 60s, in texts generated by diverse ecological/environmental movements that later on, in some countries, transformed into green parties. They also trace a complementary critique related to 'economic development' that 'evolved from specifically denoting the exploitation of natural resources in a colonial context, to refer to a rise in material well-being indicated by an increase in the flow of goods and services, and growth in per capita income' [2] (p. 683). However, it emerged that the nature-exploitation creating the base for growth-oriented economy perpetuates (and in the long run even generates) inequalities in access to material goods [14]. This resulted in the 'limits to growth' [15] perspective, and a concept of eco-development was invented, defined as an approach harmonising social needs, economic objectives and ecological considerations [16]. Eco-development was described as meeting 'essential human needs', referring to material goods, environment and participation [16] (p. 25). Eco-development was then 'a different, environmentally prudent, sustainable, and socially responsible growth' (p. 216), to which many similarities to United Nations rhetoric may be drawn [2]. This joint, intersectoral perspective on sustainability laid the foundation for the three pillars paradigm. However, Purvis et al. [2] note that there is no document that presents an explicit theoretical justification for this paradigm. Even Barbier's [17] early antecedent of the intersecting circles diagram articulating 'an interaction among three systems: the biological (and other resource) system, the economic system and the social system' (p. 104) does not seem to be theoretically robust.

Such an 'uneasy union' that lacks theoretical justification of its interconnections seemed to weaken them (the interconnection). The holistic thought seemed to be more carefully safeguarded and emphasised in the absence of the three explicit pillars [2] (p. 687). The division into three separate pillars, inspiring the United Nations' even more detailed specialisation into 17 sustainable development goals, seemed to result in the creation of 'competing realities' [2] (p. 689). Making connections between these realities may be increasingly difficult as each of them develops as a separate field.

Existing academic disciplines and research areas have furthered expert knowledge on sustainability as distinct pillars. Therefore, it is difficult, albeit not impossible, to develop a 'theory of everything' that is able to justify connections and intersections between the pillars. In this paper, we focus on a way of overcoming the lack of theoretical justification for connecting diverse pillars. What we propose is departing from a phenomenon associated with one of the pillars and theorising it in a way that embraces and encompasses the other pillars. In this article we focus on the sense of belonging, which is associated with

social sustainability [7,8,12,13]. However, when this concept is theorised with posthuman-inspired theories, economic and environmental aspects are shown to be meaningful. Our choice of post-human theoretical toolkits is justified below, in our reflection on humanism that with its assumed anthropocentrism perceives a sense of belonging as happening between human beings, while the eventual involvement of artefacts takes place from a superior position.

3. Humanistic Descriptions of the Sense of Belonging as Locating the Phenomenon within Social Sustainability

Belonging is a complex and elusive concept, which results in a wide theoretical spectrum employed by diverse researchers trying to deal with this phenomenon. Nevertheless, as most explanations are anchored in humanism, the phenomenon is described as a human one and referring to humans. The eventual involvement of artefacts, places, nature or other hon-human elements is within a technical or instrumental role, which means that the nonhuman in one way or another 'serves' human beings. Therefore, these approaches, an overview of which is presented below, centre humans as superior to their environmental, economic and cultural surroundings.

Studies on children's sense of belonging seem to build on studies on child communities (in play) and point out the need for continuous negotiation of their position in a group [18,19] or their right to undertake a particular role/task/activity [20]. The sense of belonging in such cases is described as a subjective feeling of being part of an entity bigger than oneself and 'objective' work that enables possibilities for all children [19]. It is also ascribed to other key elements crucial in developing a sense of community among children, such as membership, influence, integration or fulfilment of needs and shared emotional connection [21].

Membership in an emerging child community seems to be given and denied simultaneously, with the occurring communities rising on the negotiation of who belongs, who is excluded and who gets to decide [22]. These questions are anchored in the politics of belonging, which Nagel [23] recognises as a process in which the boundaries of group membership are produced and reproduced. Boldermo's works [12,13] present the role of artefacts, surroundings and particular toys in creating criteria for membership, while agency and subjectivity remains with humans. The artefacts and places are 'taken into use by humans' [12] (p. 64), and function as instruments/objects in or around human activity and meaning making [10]. The same happens when Sumsion and Wong [24] try to embrace the rich dynamics of the politics of belonging by putting it on three axes of: (a) categorisation; (b) resistance and desire; and (c) performativity.

The axes of categorisation evoke questions of who belongs, to what and on which—and whose—terms [16] and thus ascribe particular positions on grids of power relations [25] that are developed externally (e.g., social class, ethnicity, nationality, gender) or internally in a group of people. As such categorisations tend to essentialise and dichotomise individuals and define them as belonging to some groups and not to others [24], resistance can be invoked. Resistance 'could involve contesting, disrupting and/or subverting imposed categories of belonging and positioning to which they give rise' [24] (p. 34). Resistance departs from the human desire of setting 'into motion different possibilities' [26] (p. 13) and connecting the points that position us differently [24,26]. This results in performativity, in the 'continuous process of making and remaking ourselves—and ourselves in relation to others' [27] (p. 151), a process through which we produce ourselves as subjects within our and other people's stories [28]. Performativity is dynamic; it may move on the spectrum of categorisation and reproduce 'given' categories, or break through them, following resistance and the desire for another order of things. Nevertheless, all this research is still about human interaction as primary and the most important in the complex dynamics, and thus easily and 'obviously connected' to social sustainability.

Research conducted by Boldermo [12,13], but also others [3–11] departs from the assumption that generating more knowledge within social sustainability (automatically) contributes to holistically sustainable ECEC policies. Boldermo's [12,13] research shows

how very young children can experience moments of togetherness and negotiate criteria for membership that are not based on ethnicity, gender or culture [13]. No less important is the endeavour to show how artefacts (for example, a football) and places (such as a football pitch) can entwine in developing a human sense of belonging [12]. Our intention is to show connections between diverse pillars of sustainability while theorising a social phenomenon ascribed to a particular type of sustainability. From this standpoint, Boldermo's studies [12,13] contribute their empirical richness and transparency in how the empirical material can be interpreted. This allows us to look at the empirical examples from a different theoretical standpoint and in order to illustrate how the post-human theoretical interpretation intertwines diverse pillars of sustainability.

4. Rhizome and Intra-Action: Giving Agency to the Nonhuman

Before we discuss the limitations of the humanism-based conceptualisations of belonging, we present the theoretical standpoint from which we do so. Within the theoretical toolkits associated with the post-humanistic paradigm, it is new materialism and its concepts of rhizome theory [29], intra-action [30,31] and affect [32] that constitute the perspective from which we re-write/extend the sense of belonging.

4.1. Rhizome

A rhizome is a non-hierarchical underground root system that produces shoots from its nodes and is characterised by lateral growth, similar to a couch grass [33]. Deleuze and Guattari's [29] notion of the rhizome is that it symbolises an ever-growing, ever-changing interconnected, in which none of the layers can take superposition, while at the same time they constitute each other. A rhizome is thus an image of thought that resists and challenges predetermined linear or hierarchical orders of things, or for example the superior positioning of humans over nonhuman objects. The latter way of thinking can be seen as what Deleuze and Guattari [29] call 'arborescent' or tree-like: a way of thinking marked by totalising principles, binarism or 'either/or' distinctions and hierarchical classifications. In contrast, the rhizome theory focuses on horizontal connections, fluidity and ever-widening dynamics of moments, moments that include human and nonhuman elements simply by neglecting the distinction between them. Therefore, thinking with Deleuze's notion of rhizome allows dynamic entangled connections between and across social, environmental, economic dimensions of sustainability.

The rhizome can be utilised in relation to belonging, for example, as a conceptual tool to reflect on the resistance, desire and performativity axes of belonging mentioned above [24]. In such a case, this image could underline the multiplicity, dynamics and unfixed nature of belonging characterised by movement (and performativity). Aside from using the rhizome as a metaphor, one can use its ontological assumptions in reflecting on the sense of belonging. In this way, the sense of belonging is seen as an ever-growing root/rhizome, shooting in different directions, entwining with elements that seem to stand in its way, and intertwining elements that seem not to belong together. This allows for the sense of belonging to be thought of as encompassing the human and nonhuman, the material and nonmaterial, and the past, present and future simultaneously. Deleuze and Guattari [29] thus inspire readers to think of belonging not as a human or interhuman phenomenon, but rather as a complex plane of multiple agents and heterogeneity, involving the process of overcoming diverse distinctions by entwining *the other into the* rhizome or intertwining more diverse heterogenic elements. A rhizome 'pertains to a map that must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entryways and exits and its own lines of flight' [29] (p. 21). Such an understanding encourages describing 'belonging' as 'ever-changing and always becoming in a never-ending process' [34] (p. 121), manifesting itself as the intra-connected web of both humans and materialities. The intra-connected elements may also refer to diverse disciplines ascribed to various pillars of sustainability. This could enable more interdisciplinary writings, safeguarding a holistic and not a pillar-focused discourse on sustainability.

4.2. Intra-Action and Affect

Barad's [30] concept of intra-action points to the performative character of the existing world, by which she means that no subjects or objects pre-exist; rather, they constitute each other through interaction. To use Barad's words [30], one can say that the elements 'emerge through intra-actions' (p. 89). Intra-action is thus an interaction that constitutes the interacting elements. For Barad [30], every interaction is an intra-action. The mutual constitution of interacting elements suggests that 'the space of agency is not restricted to the possibilities for human action (. . .) agency should be granted to nonhumans a well as humans, or that agency can be distributed over nonhuman and human forms' [30] (p. 178). When interacting, humans can experience affect, which is a more-than-emotion phenomenon 'which one is not in charge of' [34] (p. 180) as it happens between the interacting sides and includes affecting and being affected at the same time.

The blurring and disappearing borderlines between the self and the not-self and between the subjective and the objective situate the self in a web of overlapping intra-actions, which Barad [31] calls diffractions. We as subjects are constituted by and constitute the diffractions; however, how we are within them is an ultimate dynamic. Who we are 'is not essense, fixity or giveness, but a contingent iterative performativity' [31] (pp. 173–174). In relation to the sense belonging, the new materialistic concepts of Barad [30,31] articulate the mutual constitution of a human among other humans and nonhuman elements, opening up the ultimate dynamics of this. The sense of belonging is thus never fixed and requires continued intra-action between human and nonhuman elements, including the environment, cultural artefacts and the economy. Diffractions can thus be used to explain both the diversity of the elements constituting the effect of a sense of belonging and intra- or interactions between the pillars of sustainability.

5. Increasing the Significance of Nonhuman Elements in Constituting a Sense of Belonging (Intra-Action)

When discussing belonging, focusing solely on human experiences or human–human relations neglects the agency of nonhuman factors. Material matter, artefacts, things, space and time are mentioned by belonging researchers in Early Childhood Education and Care ECEC settings [12,13], but as 'serving' humans. Our intention is to follow the post-human theoretical toolkits that give equal status and agency to nonhuman elements, to see what this may bring to the process of reimagining ECEC for a sustainable future. Inspired by the potentialities of Barad's ideas of intra-action, we attempt to decentre the human by considering a range of complexly intra-acting human and nonhuman factors that shape ways of being, doing and thinking. Barad's work affords the possibility of considering the 'role of human and nonhuman, material and discursive, and national and cultural factors in scientific and other social-material practices' [30] (p. 26). This allows us to explore ways in which 'normativities of sociocultural categories work on, in, and through human beings; as well as how matter or materialities and technologies enact and are enacted in these processes' [35] (pp. 339–340). This relationality recognises multiple entanglements that again (re)define or extend the possible conceptualisations of the sense of belonging.

The sense of belonging can thus be conceptualised as constituted in the intra-action between both human and nonhuman elements; intra-action in which not only the sense of belonging, but also each of the elements is constituted in its (intra-active) performance [30,31]. Intra-action is thus a term that enables an understanding of the sense of belonging as being constituted when both the human and the nonhuman constitute each other (through interacting/intra-acting).

An example from Bodermo's [12] description of Mike, whose sense of belonging develops in strong reaction to football illustrates the entangled network of human–nonhuman where Mike is often seen taking a football with him to the ECEC, plays football on a football pitch, and wears football shorts and a football t-shirt both indoors and outdoors, as the ECEC staff allow him to wear the football outfit over his rain trousers and winter clothes. From the theoretical perspective of sociocultural, humanism-anchored theories, it is Mike

who negotiates and develops his sense of belonging through the identity and role of a 'football player' and the activity of playing football, which means that the football pitch is an arena where his sense of belonging flourishes.

However, thinking with Barad's [30] notion of intra-action, it is possible to offer a diffractive analysis of Mike's development of a sense of belonging where Mike is caught up in dynamic intra-actions and affective flows between heterogeneous entities: the football, the football outfit and the football pitch all actively mutually constituting each other and the sense of belonging. This mutual composition of human and nonhumans, the football and the pitch that allow Mike's 'football player' performance and acts of dribbling the ball, where the dribbling constitutes the ball and the ball enables dribbling.

Our intention behind this small rewriting of the story of Mike is to invite readers to challenge their own, probably human-centric way of thinking of a sense of belonging as being about feeling part of a peer group/community, where nonhuman elements are only objects that can be used. By using post-human ideas, we try to give agency to nonhuman elements such as nature, artefacts and money that enable both the existence of the football pitch and the ball and thus Mike's belonging to the community and the place. We chose Mike's story because of the rich empirical description presented by the author [12], which allow us to 'experiment' and illustrate ways in which social, economic, environmental components of sustainability are tangled and inseparable. Our 'experiment' of reading Boldermo's article [12] through post-human lens leads us to see the agency of nonhuman elements. This could be shown through diverse examples that the reader only can imagine, like for example snow and activities in it, a forest or trees, a garden and the activity of gardening, a museum or any other matter that in humanism-oriented theories is neglected in terms of agency. Underlining the agency of nonhuman elements in constituting humans' sense of belonging should enable stakeholders to reflect on protecting the environment through sound, circulation (not growth) oriented economies. Thereby, it will be possible to sustain and develop the places in which human beings experience a sense of belonging (as both constituted by and constituting part of the human–nonhuman assemblages).

6. So What?

We agree with many authors [3–11] that discourse on education for sustainable development needs to balance economic, environmental and social aspects connected to all of the pillars of sustainability. We suggest a way to achieve this by extending the theoretical description of a sense of belonging, a phenomenon that is ascribed to the social sustainability pillar using a post-human toolkit that does not necessarily obey the distinctions among the pillars and theoretically equalises and connects the economic, social, and environmental elements. We believe that this has the potential to safeguard holistic reflections and avoid competition among diverse aspects of sustainability [2].

Our extended description of the sense of belonging as not only a human-related or human-centred phenomenon, using Barad's [30,31] notion of intra-action and Delezue and Guattari's [29] concept, of rhizome provides a theoretical possibility of joining environmental, institutional and economic elements. However, this possibility is not often exploited in research, policy, and practice. Even though some authors use post-human toolkits [22], their focus remains on social, human-related aspects.

By pointing to the agency of nonhuman elements, we invite interdisciplinary dialogue on sustainability that goes beyond established distinct disciplinary collaborations within the pillars. Encouraging such partnerships may happen at the level of policy writing, where local communities or ECEC settings may be viewed as assemblages of human and nonhuman elements continuously constituting each other and living interdependently. Such a shift in policy discourse could provoke context-specific social, environmental, and economic implementation of policy in ECEC settings. In this way, sustainability could be seen as not only a value for humans to realise through particular practices, for example, as is written in the Norwegian curriculum [36], but also as the way of our daily existence, involving continuous intra-action among humans, the environment and the economy that

constitute us all. Turning to the example we provided previously: perhaps the connection between the football, the football pitch might enable the sense of belonging in the refugee child as it invokes past memories of playing football and present experiences, sensations, movements and feelings. However, it also invites questions about the (economic) care of places for all (like the football pitch), but also care for the environment or natural areas that constitute positive affects both among people and between them and the localities. Such questions allow the rhizome of reflection to entwine with the economic pillar. In this way, there would not only be a discussion of how to finance a football pitch, but also a reflection on the economy of the locality. Raworth [37], for example, challenges the notion of a growth-oriented economy, proposing a circular model focused on good circulation of basic goods among all people (water, housing, schooling, etc.). This model is limited by the green ceiling, which necessitates innovative thinking in developing technologies to protect natural resources (when circularly safeguarding the basic goods to all people). In the near future, the Dutch city of Utrecht intends to implement this circular model as the foundation of the local economy. It will be possible for future research to explore its agency and intra-action with nature and humans living in the region. Research on the sense of belonging that intra-acts with a policy of housing and schooling for all may strengthen the effect of belonging between humans and places (and nature and cultures).

Extending agency to nonhuman elements when constituting the sense of belonging of children in the ECEC may empower practitioners in their intuitions, perceptions and experiences of the places/spaces where pedagogical activities take place. This could empower them in matters to do with the children's sense of belonging, but also in other aspects of pedagogical work. Understanding the sense of belonging as constituted in intra-action between the human and nonhuman may inspire people to work with the natural environment with other than an ecological focus, so as to invite the social and economic aspects. Theoretical recognition of nonhuman agency in constituting children's sense of belonging may inspire professionals to generate arguments for purchasing particular artefacts or trips to particular places. Expanding human-centred belonging into overlapping human, nonhuman and other elements may extend professionals' attention beyond inter-human relationships to human–nonhuman ones. We believe that professionals embracing an understanding of belonging as constituted in the blurred lines between human and nonhuman intra-actions will not only change the teachers' reflection, but also the children's daily experiences of effects of what Haraway [38] calls 'webbed existences' (p. 72) intertwining elements of culture, natural environments and humans. Our intention is thus to inspire new, exploratory ways of reflecting and acting, confidently joining unpredictable (human–nonhuman) connections, and thus more reflectively facilitating children's vivid and exploratory intra-actions.

As sustainability invites interdisciplinarity and holistic reflection, our intention was to suggest a way of achieving it by exploring post-human concepts that through their ontological assumptions and epistemological possibilities theoretically allow the mutual connection of all pillars. In relation to the sense of belonging, we intended to present the limitations of humanistic theories that 'reduce' belonging to an inter-human phenomenon, with the eventual involvement of nature, places or cultural artefacts enabled by humans and happening for their sake. We argue that a sustainable future demands opening up to theories that instead of confirming the central position of the human being, enable articulations of the interdependencies (including economic, environmental, and social aspects) that constitute our world.

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Unfreezing the Discursive Hegemonies Underpinning Current Versions of "Social Sustainability" in ECE Policies in Anglo–Celtic, Nordic and Continental Contexts

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Abstract: Social sustainability is linked to finding new ways of living together and strengthening social capital and participation, as well as to social justice and equity in societies, and it is becoming increasingly important for diverse multicultural societies. In this article, we trace understandings of social sustainability as established in Early Childhood Education (ECE) policy documents by following the chains of meaning connected to sense of belonging, local place and cultural diversity and through ECE collaboration with children's parents/caregivers. Critical discourse analysis has been applied to trace the chains of meaning attached to these concepts in ECE steering documents in Australia, Croatia, Denmark, Norway, Poland, Serbia, Slovenia, Sweden and the UK (England, Scotland, Wales and Northern Ireland). Such analysis shows different ways in which the ECE polices indirectly work with social sustainability, as well as create critical distance from the sets of meanings established in each country (by proving a chain of meaning established in the policy documents of another country). In conclusion, we do not advocate in favour of any of the chains of meaning but argue for continual reflection and reflexivity, and we see research to be a particularly significant arena in which to unfreeze the taken for granted and sustainable notion.

Keywords: social sustainability; belonging; collaboration with caregivers; place and space; cultural diversity

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1. Introduction

Among researchers of early childhood education for sustainability, there appears to be joint agreement on the necessity of balancing the discursive domination of the environmental pillar and generating knowledge and reflection connected to social and economic sustainability [1–10]. Social sustainability that embraces good, equity-based and new ways of living together is not far from ECE policies and practices. In this paper, we ask how social sustainability is more or less directly written into the ECE curricula of 12 countries.

In order to answer the question posed in this article about social sustainability in ECE curricula, we begin with a short description of our study's methodology, followed by an analysis of the concepts that we have seen as operationalising social sustainability at the level of ECE curricula. The concepts of belonging, diversity, local place and collaboration with parents/caregivers are firstly described using diverse theories, followed by a study of their presentation in the analysed policy documents. In the discussion section, we try to show how meanings occurring in one policy can visualise what is excluded in another or how a set of meanings established in theories show what is excluded from policy discourses.

This process reconstructs the foundations of the discursive hegemonies that shape the social ECE policies that indirectly design ECE work with social sustainability.

How and why do we operationalise social sustainability in terms of belonging, diversity, local place and collaboration with parents/caregivers?

According to Eizenberg and Jabareen [11], social sustainability refers to the concepts of equity and social justice, which allow all members of a society, regardless of diverse categories of differences, to participate in a community as equal citizens. Hägglund and Johansson [6] operationalise these aspects of social sustainability in the context of ECE as belonging. Children's sense of belonging to their peer group in the institutional setting of ECE is recognised by Hägglund and Johansson as a wide and sensitive concept that embraces the daily dynamics of being included/excluded, of participating or not participating in diverse peer communities. Sense of belonging embraces the negotiations over a child's position in play as well as being part of the peer community, in general. Research on the sense of belonging, however, also identifies those who do not belong, who do not have access to membership in a particular group [12]. Such research, by reconstructing diverse categories that "do not belong", connects to categories of difference and to diversity [13]. This is why, in our opinion, the concept of diversity, as an endless possibility of being different from those who belong (as well as being different among those who belong), should be included in discussions of belonging and, thus, of social sustainability.

Sense of belonging does not relate solely to people; it also relates to place and locality. A strong sense of "belonging" to a place, either consciously or through everyday behaviour, such as participating in place-related affairs, would be indicative of a "sense of place" [14] (p. 24), which is why local places can be seen as relevant to social sustainability [15,16]. Contextualisation of ECE in local communities is factualised when a child enters an ECE setting, firstly by and through their parents and caregivers. The links between departure from individual sense of belonging and embracing diversity, local place and community, and parents and caregivers will be included in our analysis, as these are relevant to social sustainability.

Our understanding of ECE-related social sustainability thus departs from children's communities and includes work with diversity within the ECE setting, (diverse) families and parents and the place and community that constitute the local ECE context. Even though these issues are not always directly linked by the diverse national curricula to social sustainability, the UNESCO report, "The contribution of early childhood to a sustainable society" [17], points out the role that ECE plays, nevertheless, in developing values, behaviours and skills that have a great impact on furthering socially sustainable attitudes and actions. Moreover, EU policy documents [18–20] formulate ECE sector goals, such as social cohesion, social inclusion, poverty reduction and migration integration, which relate the sector's daily work to social sustainability, even without articulating a direct link. Therefore, we have decided to trace the indirect social sustainability policies expressed in the ECE curricula of the 12 represented countries. On the basis of the UNESCO report [17], we have assumed that ECE policies of belonging, diversity, local place and collaboration with parents/caregivers are policies for social sustainability. In other words, issues of social sustainability are addressed in the guidelines for ECE work with children, both when building a sense of belonging and in their relations to the outside community.

We have identified a large number of ECE curricula around the world which, even if they do not directly refer to social sustainability, do refer to children's sense of belonging or their inclusion, collaboration with caregivers and local place/region. This is why we have chosen to reconstruct social sustainability in ECE policies by tracing chains of meaning attached to sense of belonging, diversity, local place and collaboration with parents/caregivers. We aim to reveal the sets of meanings that underpin the social sustainability policies in Australia, Croatia, Denmark, Norway, Poland, Serbia, Slovenia, Sweden and the United Kingdom (England, Wales, Scotland and Northern Ireland) by undertaking a comparative analysis.

It is important to emphasise that our analysis considers policies and not institutional practice in ECE settings. Our conclusions may subsequently relate to the practice of policymaking, which means that the reader will not be directly encouraged to make improvements in daily practice within an ECE setting.

2. Methodology: Critical Inquiry Tracing Chains of Meanings

The research questions driving our analysis address the chains of meaning attached to the four chosen concepts in policy documents in 12 countries. The methodology to be applied thus needed to provide us with a theoretical toolkit that allows such an analysis. Laclau and Mouffe [21], when explaining the establishment of meaning, indicate the relationship between the signifier, the sign and the signified, where the signifier is the word or sound designating a particular object (the sign) as a mental concept (the signified). Eventual negotiation, variation or change in meaning, in this sense, relates to the possibility of a different relating of a particular signified. In our analysis, we will focus on the signifiers (words) and the signifieds (concepts) in terms of policy analysis, and, for this reason, we have excluded physical objects.

According to Laclau and Mouffe [21], what stabilises and "freezes" a particular relationship between a signifier and a signified is discourse, and what also happens in this process is the exclusion of other possible meanings (signifieds). If we take "child" as a signifier, we can relate it to a signified, such as "adult dependent" or "citizen", each of which will establish another totality of meaning. Each of these will be based on the exclusion of all other possible signifieds connected to "child" [22]. The excluded signifieds, or the signifieds that are excluded from the created meaning, create a reservoir of possible meanings called the "*surplus of meaning*" or the "*field of discursivity*" [21] (p. 111). It is the "excluded rest" that, according to Laclau and Mouffe [21], will always try to enter and challenge the dominant discourse, the established meaning. In our analysis, the "rest" that is excluded from the discourse of a given country's ECE policy may appear in that of another country and, in this way challenge the dominant set of meanings within the analysed administrative entity.

The discourse in which the child is an "adult dependent" presents the excluded surplus of meaning from the discourse in which the child is a "citizen", yet neither of these may include violence against children as their signified. If we take as our point of departure the issue of violence against children, these two discourses regarding the child who is an adult dependent and a competent citizen will be woven into a chain of equivalence, which will make the difference between them much less visible. The chain of equivalence between sets of meanings that do not initially belong together starts by relating them to a common project/goal as well as by defining the forces to be opposed, the "enemy" [23] (p. 50). This implies that the meanings in the discourses (even where initially very different) become equivalent when fighting against a common enemy.

The four concepts chosen for our analysis are seen as equivalent in relation to social sustainability, and, as such, they are different from, or the opposite of, the environmental or economic aspects of sustainability. Although the dimensions of sustainability are considered to overlap in many respects [24], we will treat them as opposite entities in this article, as it is the dominance of environmental aspects of sustainability [8] that have made us explore its other, non-environmental, aspects (i.e., social sustainability). Having established this opposition, we developed a chain of concepts that we saw as equivalent in relation to social sustainability, as presented by Hägglund and Johansson [6] and in relation to the language of ECE.

As noted in the introduction, the four concepts we decided to trace occur in the ECE steering documents in the following countries, although social sustainability, itself, does not necessarily appear in them. This is why we intend to trace the existing social sustainability-related meanings that frame ECE work with social sustainability.

The concepts of belonging, diversity, local place and collaboration with parents/caregivers have been traced in the indicated ECE steering documents of the following countries:

Australia: "Belonging, Being and Becoming. Early Years Learning Framework for Australia" [25].
Croatia: "Nacionalni kurikulum za rani i predškolski odgoj i obrazovanje" [26].
Denmark: "The strengthened pedagogical curriculum." Framework and content [27].
England: "Statutory Framework for the Early Years Foundation Stage: Setting the Standards for Learning, Development and Care for Children From Birth to Five" [28].
Birth to Five Matters: "Guidance for the Sector by the Sector" (in consultation phase) [29].
Northern Ireland: Curricular Guidance for Pre-School Education. Belfast: Council for the Curriculum, Examinations and Assessment [30]."
Norway: "Framework Plan for Kindergarten: content and tasks" [31].
Poland: "Podstawa programowa wychowania przedszkolnego i kształcenia ogólnego dla szkoły podstawowej. Wychowanie przedszkolne i edukacja wczesnoszkolna" [32].
Scotland: "The Early Years Framework." Edinburgh [33].
Serbia: "Pravilnik o opštim osnovama predškolskog programa" [34].
Slovenia: "Kurikulum za vrtce" [35].
Sweden: "Curriculum for the preschool, Lpfö 18" [36].
Wales: "Curriculum for Wales: Foundation Phase Framework. Cardiff: Department for Education and Skills" [37].

Separate analytical tables were created for each country using a collaborative file-hosting service (Google Docs). Each table contained quotes relating to the chosen concepts: sense of belonging, diversity, local place and collaboration with caregivers. Our joint but synthetic interpretation of these quotes was put in another column. During three online meetings (of two hours each), we traced diverse chains of equivalence and differences between meanings connected to these concepts in each of the analysed policy documents. The policy documents from the different countries were analysed as part of the wider legal, societal and cultural contexts that each country/entity represents.

The countries chosen for our analysis furthermore represent very different ECE approaches and traditions [38]: the Anglo–Celtic [25], the Nordic [39] and the Continental (post-communist).

3. Analysis: The Traced Chains of Meaning

We began with the sense of belonging, which, according to Hägglund and Johansson [6], directly points to the operationalisation of social sustainability in the ECE sector. As the understanding of sense of belonging within the steering documents in some cases embraces and/or relates to diversity and difference, local place and community, as well as to family, we can say that, not only was it theoretically justifiable to include these in our analysis, but that they have also appeared in the research material (policy documents).

Each of the concepts is introduced together with theoretical mapping and followed by analysis of the policy documents.

The curricula from the various countries are not equally represented in the descriptions below, as this depends on the topic-related content in the documents. Therefore, we start the analysis by offering the reader a very synthetic overview of the chosen concepts and understandings extracted from the documents presented in Table 1. The Table 1 can thus serve as a general platform and a simple overview, and further in the article, we will deepen this and present diverse nuances. We would, however, emphasise that the summaries are based on our interpretation of what we see as the core issue to emphasise and relate to. The Croatian, Polish, Slovenian and Polish curricula, which were not available in the English language, were translated for the author team by researchers from the team who had cultural and linguistic access to these countries. The collective work on the summaries was thus based on the unofficial translations delivered by particular individuals.

Table 1. Overview over extracted meanings connected to analysed concepts in all countries' curricula.

	Sense of Belonging	Local Place and Community	Cultural Diversity	Cooperation with Parents/Caregivers
Australia	Belonging is experienced by the child through interconnectedness with others to build a sense of identity.	Children are seen as explorers and learn with others in the local and wider community to develop appreciation for different ways of knowing.	Children's identity is derived from their culture, and they have the right to maintain it. Educators respect cultural diversity, support cultural competence and honour differences.	Partnerships with families are one of the five principles that underpin children's learning outcomes. Reciprocal partnerships are integral to understanding expectation, deepening knowledge and working together professionally.
Croatia	Sense of acceptance and belonging are prerequisites for children's social wellbeing.	Kindergarten should establish a partnership with the wider social community, and the child is an active citizen who participates in shaping community.	Children should understand and accept others and their differences in an inclusive environment.	Partnership with families is one of the main principles of the curriculum, and parents are involved in institutional governance.
Denmark	Sense of belonging is related to the process of (minority) integration and becoming part of Danish society, as well as to developing social cohesion.	The pedagogical curriculum should state how the ECE setting involves the local community (in terms of nature and culture) in establishing the holistic learning environment for children.	The pedagogical offer of the ECE setting should be relevant for all children, regardless of their background, language, culture or traditions.	ECE staff should cooperate with parents in relation to both the individual child and the community of children in the ECE setting
England	Sense of belonging is not specifically mentioned in the Early Years Foundation Stage curriculum; emphasis is on equality of opportunity, antidiscriminatory practice and ensuring that every child is included and supported.	Settings are required to provide guidance for children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.	This is not mentioned in the ECE curricula, but ECE is obliged to follow the Equality Act 2010 (which explains the provisions for reasonable adjustments).	Emphasis is on a strong partnership between practitioners and parents/caregivers in order to support children's learning at home and in ECE.
Northern Ireland	Children develop a sense of belonging through becoming familiar with daily routines in the ECE setting.	Children develop an understanding of space in order to consider the relationships between (human and non-human) objects.	Children should be supported in recognising and valuing the diversity that other children bring to the setting.	Partnership with parents/guardians/carers is at the core of practice and sustaining positive home learning environments.
Norway	Sense of belonging is described as coming about through (inclusive) relationships within the peer group and sense of community among children.	Local place is understood as the possibility of using the ECE surroundings during pedagogical work, as well as places that children may be familiar with.	All children are to experience ECE as a place for them. Children are to be introduced to diverse ways of living, thinking and acting, without making any child the representative of any culture/nation/religion.	ECE is to work in understanding and collaboration with children's homes in order to safeguard all-side development. The children should not experience conflicts of loyalty between home and ECE, and, in case of any value-related conflict, the parents need to respect the values of the ECE curricula.

Table 1. *Cont.*

	Sense of Belonging	Local Place and Community	Cultural Diversity	Cooperation with Parents/Caregivers
Poland	This is mentioned in relation to the peer group.	Children are to become familiar with local places and their institutions. The curriculum seems to assume that the localities are urban.	This is not mentioned (apart from national minorities, such as Kashubian).	At the individual level, the parents are receivers of information about the child's developmental progress. At the collective level, the parents can influence the pedagogy and economy of the ECE setting.
Scotland	Settings should provide induction activities that help children to settle quickly and to have a sense of belonging.	Communities are enabled to develop their own aspirations and outcomes.	Children should learn about their own and other cultures as a way of promoting diversity.	Parents are supported by providing the children with a stimulating learning environment (as realisation of social solidarity).
Serbia	The child is meant to acquire a sense of belonging and master how to function in social groups.	Working and partnering with the local community are regarded as necessary for living with the locality (and its local crafts).	The aim of ECE is to develop relationships and gain experience and knowledge of other people. Minorities are recognised as valuable members of society.	The partnership between experts and caregivers is seen as a key element; in the case of dysfunctional families, ECE institutions are seen as supplementary to family care.
Slovenia	Everyday life in kindergarten (daily routines, rituals, events, agendas etc.) must give a child a sense of belonging.	One principle of the curriculum is cooperation with the environment as a natural and socio–cultural learning resource.	The aim of the curriculum is the creation of conditions for greater expression and awareness of group differences.	Partnership is expressed by way of parents' rights in relation to institutions, but parents are recognised as valuable partners in education.
Sweden	The work team should show respect for the individual and help to create a democratic climate in the preschool, where children have the opportunity to feel a sense of belonging and to develop responsibility and solidarity.	The work team should create the conditions for children to become familiar with their surroundings and those societal functions that are important for everyday life and to take part in local cultural life.	The preschool should provide each child with the conditions to develop their cultural identity and knowledge of and interest in different cultures and an understanding of the value of living in a society characterised by diversity, as well as an interest in local culture.	The preschool should cooperate in a close and trusting fashion with the home, (. . .) maintain ongoing dialogue with the child's guardians about the child's wellbeing, development and learning and conduct dialogue about the child's development.
Wales	Sense of belonging is defined in relation to children's understanding of Welsh heritage, literature, arts and religious background, as well as the Welsh language.	Children should learn to demonstrate care, responsibility, concern and respect for all living things and the environment.	Children should have an understanding of their own Welsh identity and treat people from all cultural backgrounds in a respectful and tolerant manner.	ECE settings are required to involve parents in daily pedagogical practice to ensure the continuity of children's learning.

3.1. Sense of Belonging

3.1.1. Theoretical Mapping

Sense of belonging is connected to membership in a particular group or entity, which implies that the group is not for all but for "us". This again introduces the struggle of who belongs, who is excluded and who gets to decide [40]. Sumsion and Wong [13], when dealing with these questions, point to three axes of belonging: (1) categorisation, (2) resistance and desire and (3) performativity. Categorisation is related to the core of power relations [41] that underpins the criteria for membership. These may either be related

to externally established categories of difference, such as gender, social class, ethnicity or age, or developed internally by the group [42]. Boldermo's [42] research shows how children's moments of togetherness not only go beyond the socio–politically established categories of difference but also continually change. This can be related to the second aspect of belonging, resistance and desire, which triggers the individual to be hostile to the "given" distinctions and develop a new order of membership. The third aspect of belonging, performativity, embraces the continual negotiations of one's own membership and position in one or another group [16].

Research on children's communities of play has registered the continual negotiation of one's own position in the group [43,44] and the right to undertake a particular role/task/activity [45]. This is in line with Gabi's [46] rhizomatic, fluid and dynamic understanding of belonging. According to Öhman [44], the grouping processes can be facilitated, by which she means the criteria for membership can be extended so that all children can experience belonging. Extending the criteria for membership is also in line with Brown's [47] portrayal of a sense of belonging as being part of a group because of who you are and not because you are fitting in (which, again, is related to being accepted for being like everyone else).

There is a large body of research discussing the sense of belonging that assumes belonging is a fulfilled need for relatedness [48,49] and that focuses on how it influences an individual's other activities. In such research, sense of belonging is reported as having a direct influence on children's motivation and their dedication to activities, as well as the confidence with which they participate in various tasks or activities [50]. This school of thought maintains that a sense of belonging is directly connected to children's wellbeing, with children feeling they are part of a greater system/environment and being more enthusiastic, happier, more interested and more confident [50]. This understanding of belonging implies pedagogical work that facilitates the fulfilment of the need for relatedness. This, however, can be about extending the criteria for the child's membership in a group or about teaching the child how to fit in or presenting to the child where he or she belongs.

3.1.2. Policy Analysis

All the policy documents frame the work of ECE services; their understanding of belonging assumes that the respective ECE service is capable of facilitating it in one way or another. There appear to be diverse chains of different meanings and assumptions that are attached to belonging. The main reconstructed difference is related to belonging assumed to be a "fixed" and "fixable", or "performative" and "processual", phenomenon. Our analysis shows that the understandings of belonging as fixed or fixable can, in some policy documents, develop a chain of equivalence in which belonging is understood as fitting in and obeying the social norms, as in the case of the Serbian curriculum, or where belonging is understood as a child's social skill that manifests itself in their being able to feel and explain their own relationships to diverse social groups, as in the case of the Polish [32] curriculum. Such a hegemony of meanings excludes the discourse on belonging established in the Norwegian [31] and Danish [27], as well as the English [28], Welsh [37] and Australian [25], policy documents, which depart from processual and performative understandings of belonging and connect it to the practitioner's work. The practitioner's work should, then, focus on extending the criteria for membership by fostering an appreciation of diversity in children's groups, which in the Danish [27] and Norwegian framework plans for ECE [31] is connected to democratic values.

The Danish Framework Plan [27] locates belonging in the children's community, participation in which seems to be a "natural" outcome of being a part of it. This is, again, related to the experience of democracy: By participating in communities with others, children gain a basic experience of belonging to such communities, as well as an understanding of democracy and democratic processes [27] (p. 36). The experience of belonging is here in a dialectic process with participation in the community, as it both facilitates participation and is strengthened by it. The Norwegian curriculum [31] also underlines the importance of

the children's community and everyone's participation in it and recognises it as connected to democracy. However, it is not connected to a sense of belonging. In the Norwegian curriculum, belonging is expressed in one line along with other values that ECE is to build on: "Meeting every child's need for care, security, belongingness and respect and enabling the children to participate in and contribute to the community are important values that shall be reflected in kindergarten" [31] (p. 7). The Australian curriculum identifies sense of belonging in a way similar to the Norwegian curriculum, as it describes belonging as children's bond with their family and their connection with others. It is the relationships and sense of belonging with them that "shape who children are and who they become" [25] (p. 7). The Danish way of articulating belonging takes its departure from children's activities and participation as phenomena that make sense of belonging occur, which enables the practitioner's work in facilitating diverse ways of participation that are relevant to children's interests, age, abilities, etc.

In contrast, the understanding of belonging in the Swedish curriculum [36] is related to children's more or less fixed linguistic and cultural identities in respect to diverse national minorities operating outside the ECE setting. "Children belonging to national minorities, which include the indigenous Sami people, should also be supported in their language development in their national minority language and encouraged in their development of a cultural identity" [36] (p. 9). The English [28,29], Welsh [37] and Australian [25] understandings of belonging seem to be equivalent to this, as they also relate belonging to children's cultural identities established outside of ECE settings. In this case, the ECE setting becomes an arena where this belonging is played out, and with the help of inclusive practices (the staff's work), it encourages opportunities for the children to "develop a positive self-image and a sense of belonging as part of different communities and have an understanding of their own Welsh identity" [37] (p. 10). The efforts here are not focused on making all the children fit an ideal of Welshness but on extending being Welsh in a way that combines the children's ECE-based experience with their home cultures. The English [29] understanding seems to be equivalent to the Welsh one in that "developing sense of belonging is an important part of inclusive practice" [29] (p. 15). Here [29], however, the children and families belonging to a wider community are seen as primary and fixed, and ECE becomes "only" an arena for promoting and celebrating (not forming) these identities: "Feeling different or being marginalized can lead to feelings of social isolation. When children and their families are able to develop a sense of belonging to a wider community this can reduce these feelings and provide children with a more secure base, from which they can learn, develop and flourish" [29] (p. 15). The children's trajectory for flourishing seems to follow the cultural line of their home cultures, and a different way of forming their identity is not discussed in the policy document (even though it is possible in practice).

This excluded possibility of identity formation/becoming comes up in the Australian curriculum, however, where the focus on exploration and becoming is more explicit and does not define the child (exclusively) through his or her home culture. Moreover, it encourages the child to "explore the diversity of culture, heritage, background and tradition" [25] (p. 30). The Australian framework [25], however, is also equivalent to the English [29] one in that it attributes a strong sense of identity to the children [25] (p. 26), which is to be recognised and performed in the ECE setting (which again may be interpreted as limiting the exploration).

Nevertheless, the general goal of strengthening sense of belonging is the child's general wellbeing. The focus on wellbeing is made explicit in the Croatian curriculum [26]. However, the Croatian curriculum combines the sense of belonging with the sense of being accepted by the group [26]. This implies the possibility that belonging is understood as "fitting in" and adjusting to the group (rather than being included when being oneself). Although it is not clearly stated in the document what it means to be accepted by the group, it is possible to interpret sense of belonging as "fitting in".

The set of meanings related to "fitting in" are more explicit in the Serbian curriculum, which describes sense of belonging as occurring when one acts in line with general social norms and the basic rules for functioning in a group [34]. This implies that belonging to a group is achieved by obeying its rules and norms, which again results in a feeling of being part of the group. The Slovenian framework [35], despite its geographical and cultural proximity to the Serbian one, seems to break out of this chain of meaning by relating sense of belonging to the staff's work and pedagogical efforts (which result in every child having the experience of being part of the group). All activities, daily routines, events and agendas for each day of the week are planned with the intention of giving the children a sense of belonging. The focus of the staff's work on the inclusive character of all activities also receives strong emphasis in the Norwegian, Danish, Swedish, English, Welsh, Scottish and Irish documents.

In Poland, however, the practitioner's work is to focus on preparing the child for school, as the curriculum states that the child who is ready for school is able to "feel and explain his or her own belonging to his or her family, nation, peer group, gender group or other group, for example theatre or sport group" [32] (p. 7). The Polish understanding not only treats belonging to diverse groups as fixed, but it also relates it to the child's ability to feel and explain, which starts one more chain of meanings and possible pedagogical practices that facilitate the child's ability to feel and explain.

3.2. Diversity and Difference (and Becoming in the Context of Diversity)

3.2.1. Theoretical Mapping

Works in which belonging is connected to extending the criteria for membership address dealing with difference and diversity. This is related to the *categorisation* aspect of a sense of belonging and also to the *resistance* to overcoming divisions and distinctions and the *desire* to do so [13]. Siraj-Blatchford, Smith and Samuelsson [51] refer to this as an ethos of compassion and respect for difference, equality and fairness, so that inclusive educational experiences can be fostered for all children.

Again, the categories of difference are often related to identity in the sense of it being essentialised and fixed, with the result that individuals are locked into belonging to some but not other social groups [13]. While some researchers demonstrate that making a child an ambassador and representative of the family culture may be ethically problematic [52], others argue for making all content brought by the children to ECE settings equally valued, regardless of cultural, religious, linguistic or historical background [46].

Attributing a particular cultural identity to a child or allowing the child to self-create their own sense of self in dialogical engagement with the diverse cultural values and meanings available in a diverse society is a question of *becoming*. *Becoming*, which can also be put as *bildung* or *cultural formation* [53], is described as taking place through dialogical involvement with the diverse cultural values and meanings that exist in the community and in interactions with other individuals/generations, as well as in artefacts [53,54]. It is thus a social and mutual process through which, in the ECE institutional context, "children and teachers shape themselves and are shaped in dialogical processes with other people, culture and history, nature and society" [55] (p. 50), and diversity in the group (of family and/or children) can function as a great resource. The question, however, is the degree to which particular children are to be representatives/ambassadors of their family cultures, and the degree to which ECE is to present diverse cultural values and meanings as a context for everyone's formation, which could allow the children to decide on the content with which they identify and when, as well as the content with which they do not identify (without making them responsible for representing one culture or nation or another). Making diversity the context of everyone's becoming opens the door to "unlimited possibilities for 'becoming' across accessible cultural values, meanings and heritage in the intercultural context of ECE" [52].

One can say that in such an intercultural context, the processes of becoming intensify and grow more complex and immersive [53,54]. This requires reflection on the part of

practitioners with regard to how diverse cultures are recognised in ECE settings and whether these settings function such that certain cultures are represented by particular children or whether they provide a context for everyone's becoming [52]. Becoming, as a process, starts with explorative and curious engagement with one's social and/or material surroundings and initiates individual and collective experiences of meaning, values and things other than "mine", and may thus facilitate a critical reception of one's own heritage [54] (p. 70). This is why writing it into policies or implementing it into practice requires reflection on the child's cultural identity. Is it already fixed or predetermined by the family's background or is it in the process of being made? Both the family and the ECE community can play an important role in answering.

3.2.2. Policy Analysis

As previously mentioned, the English, Welsh, Scottish, Irish and Swedish documents articulate the need for appreciation and celebration of children's belonging to diverse cultural communities outside the ECE settings. In such an understanding, each child seems to carry and represent a particular cultural difference, which, again, may develop clear expectations of the trajectory of identity. Even though the documents open up the category of collective identity as English or Welsh to diverse types of cultural belonging, these diverse types of belonging and identity seem to be assumed as fixed and seem to be presented and celebrated within the ECE context but not explored or negotiated. The Australian [25] and Norwegian [31] documents, through their exploration of diversity of heritage and ways of living and believing, do not associate a particular difference with a particular individual but treat diversity more as a social context, where *becoming* is happening through exploration of the existing diversity. This becoming is not expected to reproduce and preserve the home cultures of children but to allows the child to create their own sense of self at the intersection of diverse cultures, values and meanings. However, elsewhere in the Australian curriculum, it is stated that "children have a strong sense of identity" [25] (p. 26), which should not be compromised through their learning in ECE. In our opinion, this contradicts the explorative approaches, as these relate to diversity of cultures and the concept of becoming and facilitate a variety of ways of identity formation. This suggests that the Australian framework plan for ECE [25] generates two chains of meanings connected to diversity/difference. The first focuses on the preservation of cultures and the other focuses on exploring and facilitating the formation of diverse identities and becoming (where the latter is equivalent to the Norwegian framework plan [31]).

As stated in the Norwegian curriculum, "Staff shall explore and wonder at existential, ethical, religious, spiritual and philosophical questions together with the children" [31] (p. 55). This is intended to help "promote respect for human dignity by highlighting, valuing and promoting diversity and mutual respect. The children shall be able to discover that there are many ways in which to think, act and live" [31] (p. 9). These explorations and discoveries must, however, support the experience of togetherness and the value of community: "Kindergartens shall also give the children shared experiences and highlight the value of community" [31] (p. 9). The importance of everyone's participation is recognised. This focus on participation seems to be equivalent to the Slovenian [35] method of formulating diversity in the ECE context and providing every child with an equal opportunity for participation. This is slightly different from the Croatian [26] focus, which connects diversity with the children's competence in developing social and civic skills in accepting and understanding differences (arising from religious, racial, national, cultural and other differences or special needs). However, the Serbian curriculum [34] emphasises the importance of including minority cultures in institutional practices, and this may be seen as equivalent to the British [28,30,31,37] approach of including children's diverse cultural identities established outside the ECE settings; it is also similar to the Australian curriculum's belonging through the "context of the family" and "respect[ing] multiple cultural ways of knowing, seeing and living" [25] (p. 18).

3.3. Local Places (and Communities)

3.3.1. Theoretical Mapping

Sense of belonging, however, does not develop only among human beings but also between human and non-human elements, such as between humans and places. This is in line with the material perspective on social sustainability that is being advocated, according to which one should embrace not only people but also their inseparable exchange with their material, physical and natural surroundings [56]. These socio–material contexts may be seen as providing conditions and opportunities for social equity, as particular types of relationships between human beings and their environment can help to sustain a sense of connection, community and territoriality [57,58]. According to Rayner [59], space does not passively surround us. It is a vital, dynamic and complex element, allowing diverse possibilities for activity and communication, where both the people and the surroundings matter. This makes it possible to consider material elements and social relations as co-constituting each other. This suggests that the human subject cannot be seen as separate from the objects with which it is concerned [60] and intertwined and challenges any clear dichotomy between subject and object. The implication of this thinking for social sustainability (which focuses mainly on relationships between humans) is that it includes the non-human elements, even though these are systematically recognised as environmental and/or economic pillars of sustainability.

The lived human–non-human connection constitutes people's bond with and through place, whilst also enabling individuals to define and redefine themselves as they form communities in particular places, as well as across them. A sense of connection and attachment to place is, as argued by Pollmann [61], learned and habituated, yet open to modification and reconstruction through reflexive agency, educational practices and the acquisition of intercultural capital. This is in line with the description of sense of *belonging* as an "affective bond to particular geographic locations, and the meanings ascribed to such a bond changes over time, which develops a sense of belonging in people that makes a particular place an anchor of their identity" [62] (p. 3). Such experience of place is not only local; it is a source of meaning and affection.

Place can thus be understood as an arena for human everyday life and interaction [63], the shape and character of which "produces" the place [12]. Massey [12] describes places and landscape in terms of continuous change and dynamics and as essentially open and hybrid, always provisional and contested and transformed in line with people's activity and the (power) relations between them [9]. This will occasionally lead to a sense of loss [64] (p. 40) as well as to (a sense) of belonging. Some places, especially within educational institutions, may be "occupied" by particular gender and age groups [65], which, again, puts emphasis on potential mechanisms of segregation and exclusion. The public spaces of the local place, despite being public (or open to all), may be informally divided into places for "us" and "them". In such cases, a sense of place becomes an embodiment of the membership that underpins *belonging*.

The connection that children have with local place is formed through their participation in the local community's daily life, diverse structures and groups and in cultural arenas outside the ECE setting. This may provide an experience base for social learning and for common references and social equalisation [57,58]. Equitable access to community activities is crucial for social sustainability, connection to place, feelings of territoriality and belonging. Engagement with local surroundings can be linked to developing social and civic engagement [11,66,67]: for democratic consciousness to take shape, there must be something that concerns the individual, something the individual will take care of and develop into something better, to share with someone and make room for more people to participate [68]. Healthy and happy individuals with a strong sense of place, identity and hope for the future are more likely to make protection of their environment a priority [69].

3.3.2. Policy Analysis

Our analysis shows that the discourse on place and community that is present in all the documents does not mirror the theoretical complexity presented above. Rather, the material and natural surroundings are taken for granted in the analysed documents. However, comparing them allows reconstructions of different chains of meaning attached to a locality's importance.

The Norwegian curriculum distinguishes "*local community and society*" [31] as a learning area that should encourage active engagement with the ECE surroundings: "Through exploration, discoveries and experiences, kindergartens shall help the children familiarise themselves with their local community, society and the wider world" [31] (p. 36). Moreover, "Kindergartens shall give them knowledge and experience of local traditions, institutions and vocations so that the children feel they belong in their local community" [31] (p. 56). The Danish curriculum [27] seems to operate in the local community rather than in "the wider world", while the Swedish curriculum [36], again, seems to relate to learning about the wider world in terms of societal functions: "create conditions for children to become familiar with their surroundings and those societal functions that are important for everyday life and to take part in local cultural life" [36] (p. 16). Familiarising children with their local surroundings and institutions is also present in the Polish curriculum [32]; however, the curriculum seems to assume the urban character of the surroundings by referring to cultural institutions (such as theatres and museums) that are typical of urban spaces. Making the child familiar with them is seen as part of ECE's work in readying the child for school.

Familiarising children with their surroundings in the Croatian [26], Serbian [34], Slovenian [35] and Australian [25] curriculum is balanced with empowering children as active participants and agents who contribute to the local community. This may be seen as equivalent to the English statutory framework [28], in which children are active community-makers. They participate in and contribute to multiple communities as they move between home, extended family, ECE settings and play areas (p. 30).

The difference, however, lies in the assumed role of parents. In Poland [32], Croatia [26], Slovenia [35] and Serbia [34], parents are "a link" between the child, ECE and the local surroundings, and they play a crucial role in introducing children (both their own and others in these settings) to the locality. In the UK context, the children, themselves, are seen as the main actors as they move across and connect diverse communities and institutions with one another. "They often act as cultural brokers, helping families and settings understand one another" [29] (p. 24).

Despite the differences in the defining roles of the parents and children, the English statutory framework [28] directly articulates a meaning connected to places and spaces that seems to be tacit and assumed in the other policy documents: "Place, space, and histories are important. Communities and settings are embedded in particular places with their own geographies (. . .) Shared memories are often a source of comfort and solidarity, but they can also shadow the present by memories of injustice and hardship in the past" (p. 24). This is equivalent to the way that place is approached in the Australian curriculum [25], which points to the need to facilitate children's confident connection to familiar places and people and which is intended to further develop children's perseverance, resilience and optimism.

According to the Northern Irish "Curricular Guidance for Pre-School Education" [30], "children need an understanding of space in order to consider the relationships between objects" (p. 27), which is equivalent to the Norwegian [31] and Australian [25] understanding of place as a resource for learning to use natural and processed materials, which can also be seen as consistent with the focus on school readiness in the Polish curriculum [32]. It is, however, also very different to the understandings of place that emphasise the social and identity-related aspects of places.

Local place is not emphasised in the Croatian curricula [26], and the child is referred to as part of and a contributor to the community, in general. The Slovenian curriculum [35]

does not mention local place but does stress the importance of connection to socio–cultural and natural environments. The Serbian document [34] presents a broad list of local places (such as other educational institutions, health centres, cultural institutions and nearby craft centres) that children should be introduced to as a way of living within the environment.

3.4. Collaboration with Caregivers

3.4.1. Theoretical Mapping

Various research-based recommendations have highlighted children's cognitive and non-cognitive outcomes, successful transitions into school and contributions to social inclusion as a result of parental involvement in ECE. All of these have been summarised in the systematic literature review by Moss, Lazzari, Vandenbroeck [70] and Bennett [38]. Bennet [38] additionally points out two pedagogical traditions within ECE: the preschool tradition and the social pedagogy tradition. The former involves parents in work and school readiness, while the latter sees the ECE setting as deeply contextualised within the local community. According to this understanding, parents are seen as the "bridge" between the ECE setting and the local community, supporting its way of functioning through diverse forms of collaboration, events and projects in and with the local community [15,16].

Elliot and Davis [71] acknowledge Bronfenbrenner's Ecological Systems Theory model [72] as groundbreaking, in terms of understanding human development within socio–political and cultural contexts. Its focus on the impact of human connections and relationships on the lives of children may also support a holistic pedagogical approach to children in collaboration with their families and further community. They also argue that interactions with physical or natural environments that shape children's experiences are mostly absent from Bronfenbrenner's model and that these systems need a deeper and broader interpretation of environmental needs. They propose new ways of representing/updating Bronfenbrenner's [71] work and present eco-pedagogical approaches that go beyond the anthropocentrism of Bronfenbrenner's theory. These also include different parental perspectives and a view of the broader local community as part of a community ecosystem in which the parts are interconnected [71].

Another body of knowledge addressing parental collaboration shows that institutions collaborate mostly and easily with local middle-class parents, which shows that there are cultural discourses involving the majority that underpin both the expectations and form of cooperation with caregivers [73–79]. Small qualitative studies have drawn conclusions that emphasise the importance of ECE practitioners fostering dialogue in which both parties provide explanations so as to understand one another's standpoint [75,80,81] and in which parents can offer support and individualised attention [80].

3.4.2. Policy Analysis

ECE is obliged by the Norwegian curriculum to "work in partnership and agreement with the home to meet the children's need for care and play" [31] (p. 7). It is the responsibility of ECE to "facilitate co-operation and good dialogue with the parents" [31] (p. 29). In this dialogue, however, "both parents and staff must acknowledge the fact that the kindergarten has a social mandate and a set of core values and that it is the kindergarten's responsibility to uphold them" [31] (p. 29). Nevertheless, it is also the ECE setting that "must seek to prevent the child from experiencing conflicts of loyalty between home and kindergarten" [31] (p. 29).

This indicates that the home and the ECE setting are equal partners in the dialogue, as long as the parents agree with the core values of the document, which are democracy, diversity and mutual respect, gender equality, sustainable development, equality and equity [31]. This may make it sound as if these take precedence over other values potentially represented by the caregivers, as these are values that underlie the Western tradition of dialogue and democracy. However, they are made explicit so that it is transparent to all groups entering the ECE settings which value positions the institutional setting will represent and observe. The Slovenian curriculum [35], however, emphasises the importance

of showing a high level of respect for the values, languages and beliefs of all caregivers on their premises. The document does not, however, indicate precisely how possible parental values should be included in ECE content.

While the Norwegian [31], Swedish [36], Danish [27] and Australian [25] curricula point to reciprocal dialogue in partnership with parents in order to safeguard the holistic development of the child, the Australian curriculum regards families as "children's first and most influential teachers" [25] (p. 13), whereas the documents from Croatia [26], Poland [32] and Serbia [34] see the family as supporting ECE in the upbringing of children and the ECE settings as supporting the family in helping the children to learn. Evidently, in the Anglo–Celtic tradition, learning and school preparation are the object of greater parental involvement and parental cooperation, which safeguards the information exchange regarding the child's needs, the fulfilment of which is a condition for learning, as is the case in England and Australia [25]. Scotland [33] seems to go one step further by obligating ECE settings to provide support to the home in becoming a more learning-stimulating environment. As the Scottish document states, "supporting parents to provide a stimulating and supportive home environment, particularly in the early years, combined with high quality pre-school and school education is therefore a key element in delivering solidarity and cohesion and improving participation and productivity within the Scottish economy" [33] (p. 7).

All of the countries see collaboration with parents as supportive of children's learning and development, which is important for society, in general, but the ways in which this is organised differ. While Poland, Croatia, Serbia, Slovenia, Denmark and Norway address this collaboration through different opportunities for getting involved, such as exchanging information about the child or participating in and making decisions by way of parental boards (Poland, Croatia and Norway), the English statutory framework [28] and the Australian framework [25] indicate that parents are important cultural knowledge resources that inform the learning that takes place in the ECE setting "without compromising their [the children's] cultural identities" [25] (p. 26).

Here, again, comes the assumption that the children's and families' fixed identities make the family an expert in the child's cultural identity. This hegemony of meanings is not in the Norwegian framework plan [31], which sees the family as a resource for cultural knowledge but not as determining the identity of the child (which is in the process of becoming). The Serbian curriculum [34] develops this equivalence of meaning even further, stating that, as a result of a range of events in the recent history of the region, a single family is not capable of introducing the child to the complexity of cultural values lived and practised in the society, which is why ECE takes responsibility for this task.

4. Discussion

In this discussion section, we refer to the chains of meanings reconstructed in the policy documents and the theories mentioned at the beginning of each analytical section. In particular, we discuss how meanings occurring in one policy can visualise what is excluded in the other or how a set of meanings established in theory show what is excluded from policies and, as such, challenge them.

In relation to sense of belonging, the policy documents assume this to be either a processual or a fixed/fixable phenomenon, which guides ECE efforts to facilitate children "fitting in" or extending the criteria for experiencing membership in the group. However, the different hegemonies of meaning attached to belonging become equivalent in their assumption of a dichotomic character of belonging. Children are assumed to either belong or not. This "fails to capture the affirmed world of difference" [82] (p. 56), whereas a rhizomatic understanding of belonging [46] can embrace its different, ever-changing forms in a range of contextual aspects and circumstances. The ever-changing terrain of belonging may be influenced by a series of interconnected events or ways of living that make it possible to consider children's multiple belongings, their intensities and their human–non-human character.

The dynamics of multiple belongings bring us to the issue of identity raised in the analysis. The English [28], Welsh [37] and Australian [25] curricula assume that identity is home- and family-anchored and of a fixed and stable character and that it should not be compromised in the institutional setting of ECE. However, the Norwegian [31], Danish [27] and Serbian [34] documents indicate, as we understand them, the need for children to engage dialogically with diverse cultures and meanings so that they can explore, learn and *become* themselves. Sweden narrows the identity issue to language and includes this in the content of ECE without taking any position in relation to identity.

The identity-related assumptions in the analysed curricula invite one to reflect on the reservoir of identity-related meanings that have been excluded. In the case of the assumption of a fixed identity, the child's becoming is significantly limited and narrowed to learning that is locked inside the private sphere of family life. In countries where identity is seen as family-anchored, fixed and stable, such as England, Scotland, Wales and Australia, parents/caregivers are seen as experts in these issues. They are encouraged to offer their input in creating more inclusive environments to support their child's learning.

In the documents that do not assume that children's identities are determined by family background (such as the Norwegian, Danish, Swedish, Croatian, Serbian and Slovenian curricula), all contact by the children with diverse cultures and values is embraced, so that their identity formation, becoming and learning are facilitated. In these documents, children are not expected to preserve the culture of their families, as is the case in the English, Scottish, Welsh and Australian documents. The preservation of minority cultures does appear in the ECE content, however, as part of a diverse society.

The Polish curriculum does not mention cultural diversity at all, which, in a homogenous society, approximately 90% of which consists of Polish citizens, can be seen as silencing minorities and making practices of dealing with difference dependent on local contextual practices, implicit bias and the private (either prejudiced or affirmative) attitudes of professionals.

In the context of sense of belonging to place, some reconstructed chains of meaning have assumed place as something stable and fixed, as in Poland, Croatia, Serbia, Slovenia, Norway, Denmark and Australia, which children should be introduced to and made familiar with. The Nordic countries, in particular, have a long tradition of using nature and outdoor areas as a resource for work related to social competence, sustainable development and belonging [83].

Conversely, the perspective presented in the English [28] curriculum identifies children as agents and community makers because of their transitions between institutions and communities, and according to the Australian curriculum, the need for developing confidence occurs when entering diverse places where there is shared thinking and "collaborative learning" [25] (p. 18). This may be understood as a way of overcoming the exclusive character of particular places that are being occupied by particular groups of people or particular genders or positions. In Northern Ireland, the idea of place is directly connected to the non-human dimension of objects and materiality, as well as shared memories and sense of community, which encourages thinking of ECE settings in the local context as human and non-human assemblages [57,58] where learning and development take place.

5. Conclusions

From the normative standpoint of social sustainability, which emphasises the importance of equity and justice, it seems clear that policies that are oriented towards processual understandings of sense of belonging and pressure on ECE efforts to extend the criteria for child membership are more socially sustainable than others. Such policies may be strengthened by a more rhizomatic understanding of sense of belonging, which could potentially help practitioners to understand the heterogeneity of the diverse cultures in dialogue with which children become themselves, as well as the human–non-human (human–place) dynamics of which such heterogeneity is constituted. Understanding children's cultural identities as fixed and expecting them to be preserved by ECE or understanding them as in

development and expecting them to be supported by ECEs through access to different values, artefacts, ways of living and beliefs poses a dilemma in our view. Social sustainability aligns with cultural sustainability when cultural heritage is important; on the other hand, individual children should not be burdened with reproducing particular heritages. We thus see the concept of *becoming* as worthy of greater attention from policymakers, so that the child's self-creation as a subject with access to and in dialogue with diverse cultural values and meanings can be sustainable, as it also provides diversity as a joint reference (see also Section 3.2).

As parental identities become more stable and fixed, we view inclusion of their cultural knowledge in ECE content and practices as a matter of great importance. However, this must be done without prescribing a particular cultural heritage to a particular child but by using it as a resource for the whole group so that exploration, diverse identifications and formative development can take place. In relation to the concept of place, most of the documents emphasise its human, community-related character, while only the Northern Irish document [23] acknowledges the human–non-human assemblage. From a sustainability standpoint, connection with the non-human dimension of our world is important, and awareness of how the non-human aspect informs inter-human relationships is of importance and deserves a greater place in future policies on social sustainability through ECE.

These conclusions are limited since they are based on what social sustainability means for us today. Our intention was to demonstrate how social sustainability is indirectly addressed in ECE policy documents and how it is established through different hegemonies of meanings attached to sense of belonging, local place, diversity and difference, as well as through collaboration with parents and caregivers. By comparing these established sets of meanings, we hope to inspire the growth of new chains of meaning. This paper does not conclude by advancing one or another chain of meaning, but rather by advocating on behalf of the need for continuous comparative reflection, which enables diverse localities to function for one another as spaces for critical distance and thus unmask the excluded surplus of meaning and provide other perspectives and opportunities for the assessment of one's own policies. Therefore, we suggest approaching research as an arena for international dialogue on ECE policies, where not only can documents be compared but also policymakers, researchers and practitioners can have the opportunity to exchange meanings, co-create and inspire local policies.

Our recommendation for future socially sustainable writing of policy is to have international meetings/workshops that would allow policymakers to construct local policies on the basis of local ECE context, conditions and/or systems, while continuing to participate in global/international dialogue, as sustainability is of worldwide relevance. Such policy co-creation could be followed up with research, which is an alternative to today's dominant practice of research generating policy briefs, which policymakers create to a high degree and which limit the opportunities for authentic engagement with communicated meanings.

We view this as a fascinating area for further research, and we suggest following the structure of how diverse policies are implicated in institutional practice or, alternatively, how ECE settings work with social sustainability when they are not directly linking their own work to the value of social sustainability. Such studies could thus foster the creation of an overview of the ECE sector's impact on sustainable futures for diverse communities and show this sector as one that is particularly worthy of investment.

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the original draft preparation, and it was A.R.S. who organised the final version of first draft. All of the authors were contributing to all of the sections, with particular responsibilities connected to particular policy documents: Y.B. was responsible for the Danish, Swedish and Norwegian Fremework Plan; J.G. the ones from England, Northern Ireland, Scotland and Wales; J.K. the Australian Framework Plan for ECE; A.V.-J. for the Croatian, Serbian and Slovenian; and A.R.S. for the Polish and Norwegian. Writing—review and editing: A.R.S. led the conceptual process of revising the text in line with the reviews and coordinated everyone's contributions to the content. All of the authors contributed to the revisions. J.K. proofread and language edited the draft no. 2 (after major revisions), and A.V.-J. organised the references in the text and on the reference list. Project administration: A.R.S., with help of all authors. All authors have read and agreed to the published version of the manuscript.

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Global Citizenship and the Sustainable Development Goals



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Synonyms

Children as citizens; Earth citizenship; Eco citizenship; Global dweller; Global family member; Planetary citizenship; World citizen

Definitions

Global citizenship is a multiple perspective concept, related to the growing interdependency and interconnectedness between societies in economic, cultural, and social areas, through factors like increased international trade, migration, and communication. Global citizenship is also linked to concerns of global well-being, based on the understanding that global well-being also influences national and local well-being, and is a crucial factor for global peace. Global citizenship does not imply a legal status, but refers to the belonging to a broader community and common humanity (Lee and Fouts 2005, p. 123), linking the local and global, and the national and international. Grounded in universal values, including respect for diversity and pluralism, global citizenship is a way of understanding and acting, and of relating oneself to others and the environment in space and time (Lee and Fouts 2005; Sund and Öhman 2011; UNESCO 2013, 2014). Early recognitions used the terms "citizen of the earth" or "world citizen" (UNEP 1975), "ecological citizenship" (Sáiz 2005), or the more inclusive term "cosmopolitanism" (Sund and Öhman 2011). Nowadays, global citizenship is a contested concept in scholarly discourse, being continually developed. It has expanded to include even kindergarten children, as the Sustainable Development Goals (SDGs) (UNESCO 2015) address "all learners" (UNESCO 2017, p. 10), including all children, youth, and adults.

The terms "global" and "cosmopolitan" citizenship are broadly used interchangeably in the literature (Carter 2001). Both global and cosmopolitan citizenship has been called citizenship "beyond borders" or the "Nation States" (Bellamy 2000; Sund and Öhman 2011), and "planetary citizenship" with regard to the global community's responsibility to preserve the planet earth (Henderson and Ikea 2004). It has even been called "green citizenship" (Dean 2001) in political or administrative connections (UNESCO 2013, 2014). More recent perspectives like children as

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citizens are under exploration (Heggen et al. 2019).

Global Citizenship and the Sustainable Development Goals

Introduction

The idea of global citizenship or world citizenship is the idea that human beings are "citizens of the world.". What does this really mean? It is an old idea that some ethical and political norms may be valid for all people at all times and places (Dower and Williams 2002; O'Neill 2002). Global citizenship is emerging as a vital political, social, and cultural issue of our time. The main objective of the entry is to introduce the concept of global citizenship and its relation to the Sustainable Development Goals (SDGs). It provides an overview of global citizenship from several perspectives. A sketch of the historical background will be first presented, followed by a literature review on global citizenship in more recent times, which explores the concept's various forms. As such, the entry looks at the historical development of citizenship, before it investigates the role of global citizenship today, through citizenship education for all humans, including citizens like children and youth. Finally, this entry considers how global citizenship may contribute to shape a sustainable future through the citizenship of children and youth.

Historical Background

The term "citizenship" has a long history and variety of meanings. Confucius (551–479 BC) in China was the first to express ideas that can be related to global citizenship. He tried to teach the concept of a greater unit, a world commonwealth where all men strive for welfare and harmony (Beros 2016). The Greeks first explored the idea and practice of citizenship in their city-state (Heater 2004). In Aristotle's (384–322 BC) work of political philosophy, the "Politics" from the fourth century BC, he expressed the view that a man could only develop the full potential of his life and human personality through participation in public life, and particularly in the affairs of a city-state (Heater 2004, p. 4). This Greek concept of citizenship was an inherited privilege, a status within an exclusive group, even if this group was diverse regarding factors like interests or wealth. The Greek expected considerable skills from their citizens, as they should be able to fulfill the functions of central roles in society. The citizen class was educated through two basic models. The first model encouraged individual skills and skills of public speaking, notably rhetoric skills and judgment. The other model forced training and even indoctrination of youth, including obedience to the laws, submission to the government, and a readiness to defend the state, by course of arms. Even though one must keep in mind that the great Athenian philosophers – Sokrates (ca. 470–399 BC), Plato (428/27–424/23 BC), and Aristotle (384–322 BC) – were loyal to their times restricted understanding of citizenship, Sokrates had a parallel loyalty to the whole mankind which later was reviewed as an early commitment to world citizenship as an ideal (Heater 2004). In the fourth century BC, the Romans introduced historically significant adaptations to the concept of citizenship in connection with their territorial expansion. By offering Roman citizenship to their defeated (male) enemies, they annexed both their territory and loyalty. Roman citizenship became much appreciated, as it provided equality before the law. Yet, females were excluded from this equality and this ancient citizenship concept. In medieval Europe, people had to, on the one hand, behave as the ecclesiastical authorities required, and on the other hand, as the administrative and legal authorities required, in a dualistic system of loyalty (Heater 2004). In the sixteenth century, Erasmus of Rotterdam (AD 1466–1536) built on the ideas of Greek cosmopolitanism, to advocate world peace, while Hugo Grotius (AD 1583–1645) was the first to formulate the idea that an individual has rights simply by being a human.

According to the Dutch Baruch Spinoza (1632–1677), the highest development to which humans can aspire is "*to acknowledge the union existing between the body, the mind and the whole of nature*" (Gamlund 2003). Gamlund (2003) underlines the interpersonal and holistic essence in Spinoza's philosophy: if humans understand

themselves as inseparable parts of nature as a whole, it implies community ethics and a belief that humans collectively can contribute to care for each other and contemporaneously for the nature they are part of. With his pantheistic thinking, Spinoza goes beyond the original citizenship concept, but close to ideas of cosmopolitanism, sustainability, and to eco-centric worldviews, all concepts of global citizenship.

Apart from a few influences, the idea of cosmopolitanism seems to have vanished for a very long time, which in a way endured until the eighteenth century (Beros 2016). Jean-Jacques Rousseau (AD 1712–1778) had a strong commitment to patriotism and nationalism, which made him reject the ideas of cosmopolitanism and world citizenship. In line with Aristotle, he was convinced that only by living as a citizen, could man develop a sense of justice, and a moral and rational conscience: a true citizen seeks the realization of the "General Will" and the common good, not the satisfaction of his own selfish interests.

To secure world peace, and reduce the likelihood of war, Immanuel Kant (AD 1724–1804) turned the focus to the idea of cosmopolitanism, suggesting noninterference in the internal affairs of other states and an institution of cosmopolitan rights (Heater 2004).

Vital political ideas and doctrines of the late eighteenth century, like nationalism, liberal democracy, and socialism, taught crucial notions about the relationship of the individual to state and society, and rouse interest in the way young citizens can prepare for their roles. In this connection, Marc-Antoine Julliern (AD 1775–1848), the "father of comparative education," tried to work for world peace. He proposed an international bureau of education to promote mutual understanding among educators as a means of enhancing peace. The political and social pressure during the nineteenth century, for example, by nationalism and the industrial revolution, could have been powerful enough to bring educational theories to the issue of citizenship education. However, such considerations were fragmentary and incomplete (Heater 2004).

In the twentieth century, the idea of citizenship and the need of education for that status and function has been widely accepted and appreciated, for example, with regard to national self-determination, minorities, citizenship and social classes, and social responsibility (Carter 2001).

The ethnic movements and processes of democratization in Latin America, Southern Europe, Asia, and Africa, have been rather diverse, but they have collectively challenged prevailing ideas about citizenship. They have questioned the idea that the nation-state is the legitimate basis for defining and developing democratic citizenship rights and responsibilities (Yashar 2005, p. 3). In these and other parts of the world, there are increasing demands for equal inclusion and access for all ethnic groups, and for the recognition of group rights and ethnic self-determination. Ethnic-based movements have a long history in Africa, Asia, and parts of Europe, while in Latin America they only emerged in the last few decades (Yashar 2005, p. 3). "*The right to be heard, to be seen, to be recognized, and to be respected, are at the core of much indigenous organizing* [of movements] *throughout the Americas – from Mexico, to Guatemala, to Ecuador, to Bolivia, and beyond*" (Yashar 2005, p. xiv).

In post-colonial Africa, for instance, many of the conflicts are related to the denial of a right to citizenship. Political crises since independence in countries like Democratic Republic of Congo, Zimbabwe, Mauritania, Uganda, and elsewhere, show a similar pattern, where the political leaders seek their support among one part of the country's population, while excluding other parts from the right to belong to the country. As a result, hundreds of thousands of people lack an official identity, access to health services, and the opportunity to register their children at birth, or to school enrollment. They have no work permissions, cannot obtain travel documents, and they cannot vote. Such policies are a constant threat to any democratic processes in society (Manby 2009). Questions of citizenship have been used to exclude individuals from seeking challenging political positions, or to silence critical voices. These patterns are closely linked to the colonial heritage of each country, and the migration and land

expropriation that was implemented or facilitated by the colonial authorities. These injustices are multiplied by a gender inequality in the laws in many countries, not allowing women to pass their own citizenship to their children or their husbands, while man can (Manby 2009). These injustices also leave children and youth lacking rights as citizens.

While earlier centuries did not even include all adult males as citizens, participative citizenship, and the right to vote as a universal norm, evolved – over centuries – to an internationally homogeneous pattern, including all adults, also females and all from the age of 18, and finally also indigenous people (Carter 2001, p. 6; Heater 2004).

Citizenship has been defined in terms of communities in general and in terms of the nation-state in particular. The term includes particular attitudes and values, toward the territory and the fellow citizens (Barr 2005; Beros 2016). Educational processes concerned with citizenship therefore have promoted learning about how the state or community functions, about citizen's rights and responsibilities within the community, and about attitudes and values that help develop positive relationships between individual citizens and the community (Barr 2005).

Through times, citizenship seems to have been a persistent human social need. From a philosophical perspective, theories of citizenship are based on assumptions and beliefs about the nature of humanity, and on ethical qualities and values. From an economic perspective, citizenship was originally restricted to wealthy and privileged parts of the society, while more recently, equity, equality, and social justice for all, have been included in the idea of citizenship (Heater 2004). From a political perspective, citizens are those who have rights and benefits, but they also have duties. Traditionally, citizens had to defend the territory to which they belong, and a global citizen then, should feel responsible for the planet Earth. Broader ecological concerns with the sustainability of our planet has both widened and deepened the concept of citizenship. Along with the environmental movement, voices from scientists like Rachel Carson (1907–1964) and philosophers like Arne Næss (1912–2009), and following international guiding documents like the Brundtland report (WCED 1987), the Belgrader Charta (UNEP 1975) and The Earth Charter (The Earth Charter Commission 2000), the ecological aspect of citizenship has edged its way through, along with global ecological challenges. More recently, the SDGs (UNESCO 2015), and the UNESCO (2014) document on "Global citizenship education," outline a holistic approach, and underlines the global community's responsibility to preserve the planet Earth.

Global Citizenship Today

At present, the term global citizenship is linked to the emerging realization of a major public's consciousness of living on a spherical earth, a consciousness that has slightly developed since the fifteenth century. From the 1990s, the terms global or cosmopolitan citizenship were often used where world citizenship was used earlier (Carter 2001). Globalization, international collaboration, and the Universal Declaration of Human Rights in 1948 (UDHR 1949), have encouraged new views on the nature of citizenship. However, human rights are considered as innate and inalienable, while the rights of a citizen are created by states. The state is the authority through which human rights legislation is enforced, while there is no universal, global authority for human rights (Isin and Turner 2007). In many ways, global citizenship tries to overcome these contrasting ideas, and so do the 17 SDGs (UNESCO 2015).

Citizenship is a vital democratic and democratizing institution. In this connection, there are discussions related to whether global citizenship can express a combination of human and citizenship rights. It is also discussed whether global citizenship is related to questions of global governance, an idea that is widely viewed as both problematical and utopian, and as a questionable aspiration, as such a government might lack democratic legitimation (O'Neill 2002; Isin and Turner 2007). Furthermore, post-humanistic ideas suggest the more than human world – all living organisms – to be part of the world's community (Vetlesen 2015).

According to O'Byrne (2003), the nation-state has never been the only source of (political)

identity. Rather, political identities are fluent, and are socially and pragmatically constructed labels that draw on a variety of experiences at the level of the individual lifeworld, and various choices made available to the individual. In a similar way, global citizenship is constructed through a variety of aspects, including the national and local ones. Global citizenship appreciates diversity and difference in a multicultural world (O'Byrne 2003). Darren considers global citizenship to be a "transformative historical capacity," and one of the possible outcomes from contemporary conditions. O'Neill (2002) outlines the challenges of individual global citizenship, by asking if global democracy would be required in order to achieve global citizenship with global obligations. This raises the question of how a way toward global democracy may look like. The United Nations may be a good example in this regard. However, it is important to maintain critical discourses for the further development of global democracy. This is also true for the further development of economic and social justice and the influences of current international (economic) institutions in this regard (O'Neill 2002).

Global Citizenship and the 17 SDGs

The Agenda 2030 for Sustainable development with 17 sustainable development goals and 169 targets (UNESCO 2015) is a global commitment to secure the lives of all citizens of our planet, both today and in future. The SDGs try to influence national level priorities that are necessary to achieve crucial results at global levels (Bexell and Jönsson 2017). Poverty, hunger, world epidemics, in addition to global warming, are some of the global problems that raise questions regarding a common global responsibility and action taking. The Agenda seeks also to strengthen universal peace (SDG 16). To achieve these ambitious goals, global solidarity, justice, and equity are essential.

The SDGs are not legally binding treaties, and their realization builds on moral- and value-based commitments, which need to be worked out politically in collaboration with national and international institutions (Bexell and Jönsson 2017). Global citizenship addresses a personal and political identity involving loyalty and commitment beyond the nation state and to the whole world community (O'Byrne 2003). A fundamental principle of global citizenship models is that an individual's loyalty, rights, responsibilities, and active participation can and should extend beyond the borders to encompass the whole of humankind (Pike 2008). The concept of global citizenship, therefore, essentially supports the SDGs by promoting individual and common responsibility and readiness for action for the Earth and its people. An identity as a global citizen will also strengthen solidarity and empathy, the recognition of common values, and the willingness to contribute to common goals (Bexell and Jönsson 2017). The 17 SDGs need multiple, different, and specific actions, and require reasonable and effective sharing of both responsibilities and actions. A community of global citizens will ease and support communication and sharing of these goals. Therefore, it is important that all countries and all stakeholders act in collaborative partnership (SDG 17) and implement the common goals for areas of critical importance for humanity and the planet (UNESCO 2015). The first and second of the 17 SDGs is to end poverty and hunger in the world. These two goals crucially appeal to the whole world community of citizens for sharing and solidarity. The third SDG will ensure healthy lives and promote well-being for all. Together with the SDG 4 (quality education), SDG 5 (gender equality), and SDG 10 (reduced inequalities) it brings to mind some of the crucial benefits everyone can gain in a community of global citizens (UNESCO 2015). The SDGs 6 (clean water and sanitation), 7 (affordable and clean energy), 13 (climate), 14 (life below water), and 15 (life on land) address particularly the ecological dimension of sustainability, while the SDGs 8 (decent work and economic growth), and 9 (industry, innovation, and infrastructure) mainly address the economic dimension. The SDGs 11 (sustainable cities and communities), 12 (responsible consumption and production), and 17 (partnerships for the goals) underline the intertwined interrelationships between all 17 goals. Education for sustainable development will empower all learners of the globalized world to develop knowledge, skills,

attitudes, competences, and values required for addressing global citizenship (UNESCO 2013, 2015, point 4.7). Along with the Earth Charter (The Earth Charter Commission 2000), all the SDGs (UNESCO 2015) are unifying guiding documents of utmost importance to the community of global citizens.

Global Citizenship Education

The fourth SDG is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all," including all children, girls and boys, youth, woman and man, persons with disabilities, people living with HIV/AIDS, older people, indigenous people, refugees, and internally displaced persons and migrants (UNESCO 2015, SDG 4, target 23.). Access to primary, secondary, and tertiary education shall be ensured for all, and all learners shall acquire the knowledge and skills needed to promote sustainable development, through among others, global citizenship (UNESCO 2015, SDG 4, point 7.)

Also, the Agenda 2030 "*will strive to provide children and youth with a nurturing environment for the full realization of their rights and capabilities*" (UNESCO 2015, target 25.). Global citizen education is a relatively new concept, and the expanding recognition of early childhood education opens up new possibilities for children, youths, families, and society, locally and globally (Davies 2006). Among these possibilities, there is the development of adults' and children's active roles as citizens (Grindheim 2017).

The insertion of "citizenship" into global education implies an additional value with regard to previous conceptions. Global education may address international awareness in general, while global citizenship confirms the direct concern for social justice. Hence, global citizenship implies a more active role related to social justice, rights, and engagement with culture and cultural conflicts (Davies 2006). According to Wringe (1999), global citizenship follows a key principle with regard to social justice, ensuring that " *the collective arrangements to which we give our assent do not secure the better life of some at the expense of a much worse life for others*" (Wringe 1999, p. 6). However, empathy is not enough. There must be a dissemination, a spread, and an excitement to increase motivation for change. These aspects have profound implications for teaching and learning. Oxfam (1997) and Davies (2006) outline essential learning outcomes for a curriculum on global citizenship:

- To develop an awareness of a wider world and a sense of one's own role as a global citizen. To respect and value diversity.
- To have an understanding of how the world works economically, politically, socially, culturally, technologically and environmentally.
- To take action by social injustice.
- To participate in and contribute to the community at a range of levels from the local to the global.
- To be willing to act to make the world a more equitable and sustainable place.
- To take responsibility for one's own actions.

In the wake of the United Nation's Decade for Education for Sustainable Development (UNESCO 2012), the idea of "global citizenship" has become intuitively familiar in many education contexts, from early childhood education to higher education. The United Nation's Decade for Education for Sustainable Development (UNESCO 2013, 2014) has established "Global Citizenship Education" as the framing paradigm. According to UNESCO 2014, p. 9, global citizenship "*encapsulates how education can develop the knowledge, skills, values and attitudes learners need for securing a world which is more just, peaceful, tolerant, inclusive, secure and sustainable*".

The concept includes cognitive skills, socio-emotional skills, and behavioral skills, and reflects ideas formulated in curricula for all levels of education (Waldemarian et al. 2017). However, the idea of global citizenship may be associated with an exclusionary mindset considering the many adults and children who globally are denied access to the rights and privileges of a citizenship. Education is a powerful force in this regard. Public education, through its choice of curriculum and

its affirmation of cultural norms, plays an important role for the promoting of values and ideals, both locally and globally (Pike 2008).

Global citizenship education depends on a society's openness to universal values, with transformative learning and through the empowerment of youth (Barr 2005; UNESCO 2014). UNESCO (2017, p. 10) provides key sustainability competencies (Wiek et al. 2011) relevant to all SDGs (UNESCO 2015). All learners in kindergartens, schools and higher education, should be enabled to be constructive, take responsible action, and practice self-organization in various contexts and situations in an increasingly complex and uncertain world. This includes system thinking competency, anticipatory competency, normative competency, strategic competency, collaboration competency, critical thinking competency, self-awareness competency, and integrated problem-solving competency (UNESCO 2017).

Today, the planet's inhabitants are increasingly interconnected. However, international globalization processes with their multiple links to economic growth may promote consumerism rather than solidarity and may thereby challenge the ideals of global citizenship. Addressing the SDG 10 (reduced inequalities) (UNESCO 2015), many of the world's people are far apart from each other with regard to their life situations, and increased connectedness has not been a guarantee so far. Global citizenship education may motivate an interest in the living conditions of other global citizens, and further contribute to greater mutual understanding, increasing attention, respect, and care for other global citizens and their home places.

The Agenda 21 (UNEP 1992), has had a strong influence on global citizenship education, as will probably the follow-up Agenda 2030, and the SDGs (UNESCO 2015). In addition, the Global Action Program on ESD (UNESCO 2018), the follow-up of UN's decade of education for sustainable development (2005–14) (UNESCO 2012), has ambitions to create a global community of learners for sustainability (UNESCO 2018).

Global Ecological and Environmental Citizenship

While global citizenship has been interlinked with an anthropocentric view, that is to say a view of the world corresponding to human-centered values and experiences (Dean 2001), the ecological dimension of sustainability has been groundbreaking for the development of global ecological citizenship education (Dean 2001; Sáiz 2005). The UNESCO (2014) document on "Global citizenship education" outlines a holistic approach with focus on open, democratic, and respectful communication, on value formation and on critical thinking. Yet, the document itself acknowledges that a term like "planetary citizenship" would maybe better focus on the global community's responsibility to preserve the planet Earth.

Today, the originally anthropocentric concept of "citizenship" seems to be associated with ideals like the idea of community, of collaboration, of interconnectedness, of belonging, of peace, of ecological balance, and the idea of a better world. These ideals imply a stronger focus on citizenship as a role, a way of acting, rather than citizenship as a right, achieved through legislation (Lister 2007). In order to strengthen the focus on emotions "towards" other citizens, both humans and nonhumans, the citizenship concept is, occasionally replaced or expanded to the "family" concept (The Earth Charter Commission 2000; Alfonso 2014; Pope Francis 2015).

A family is characterized by common values, like mutual caretaking, mutual responsibility, collaboration, and the sharing of resources and working tasks. Emotions may intuitively be associated with the "family" concept, which is both anthropocentric and eco-centric. Including the earth as a partner in such a family will consider the concept of global eco-citizenship. This may make people comprehend of the environments' importance in the development of the future, and therefore move the concept of global citizenship toward an emphasized importance of the environment. Such family values were revisited and became central in sociocultural learning theories (Lave and Wenger 1991), in system theory, and in documents like "The Earth Charter" (The Earth

Charter Commission 2000). In families, one performs the citizenship as roles, providing citizens of all age's importance in different ways. Social groups, schools, and even kindergartens may work to enhance a feeling of connectedness with a common global home (Næss and Jickling 2000; Dean 2001; UNESCO 2012; Pope Francis 2015).

Eco-citizenship or environmental citizenship seems to include a stronger inclusion of the non-human parts of the world's ecosystem (Dean 2001; Barr 2005) than global citizenship. The term eco-citizen has, however, no finalized definition. Discussions and a further exploration are therefore needed. With regard to UNEP (1975), Newby (1996), Van Steenberger (1994), Dean (2001), and UNESCO (2015), the following aspects seem to be reflected: Eco-citizens seem to be citizens of planet earth, participating in the ecological system of the planet, together with all other biotic participants. It is among other aspects, a view that is underpinned by critique on the ways humans use and share resources, and it recognizes intergenerational equity issues. Such holistic thinking can contribute to common references for people with different cultural background, nationality, religion, or other affiliations. Eco-citizens have a close connection to the place they live, the Earth, in line with Indigenous perspectives. Eco-citizens have both a common and individual responsibility for the planet and all its biotic and abiotic components, and a common and individual responsibility to future generations. The concept of eco-citizens is perhaps mostly rooted in literature studies, as exemplified in Bavidge (2009).

Education of eco-citizens differs from earlier citizenship education, in the way that its aim is to support the eco-citizens to develop their own eco-philosophy (Næss and Jickling 2000). As with the expansion of the citizenship concept with "family"-traits, eco-citizenship is in line with regarding citizenship as a role. In our rapidly changing world, we all have to adapt continually to present challenges, like new life situations and new technology. By adapting to these challenges, we all are both being and becoming citizens, as children and adults (Heggen et al. 2019), even if children and youth are not voting citizens, and have other legal rights than adults (cf. UNCRC 1989).

Children and Youth as Global Citizens

Through the UN legal rights for children, all children have the status as citizens, in a rights-based view of citizenship (UNCRC 1989). The UNESCO Agenda 2030 aims to empower children and youth (UNESCO 2015, point 23. and 25.), and internationally this is an important group with regard to transformative education for sustainability and responsible citizenship (Bell 2016). Children and youth's belonging, participation, and cooperation in the society also often lead to citizenship as a role (Bjerke 2012). Lister (2007) underlines the importance to recognize children as being citizens, not only "learner citizens" to become citizens as adults.

The contradictions of anthropocentric and eco-centric elements must be overcome in order to develop a "human and non-human friendly" concept for global eco-citizenship. Vetlesen (2015) argues that to evolve a beginning understanding of humans as parts of the diverse life on Earth and to promote solidarity and care for the more-than-human world we must change from an anthropocentric to an eco-centric view of nature. We may find ideas among indigenous approaches where ecological knowledge, collaboration in a community, ethics, and responsibility are closely connected to our common planet. Further, children and youth with an identity as eco-citizens may have a beginning understanding that humans, including each individual child, are active parts of the diversity of life on earth (Heggen et al. 2019). This initial sense of belonging to our planet may be central in developing a desire of care, solidarity, curiosity, and knowledge.

Children and youth are "different" citizens (Lister 2007). They do not have the same legal rights as adults, they cannot vote in official elections and they cannot be held accountable in the same way as adult citizens (Lister 2007). Children also perform their citizenship in different ways than adults, for example, through play (Grindheim 2017). Their actions are also more often local than those of adults, while through these local actions,

children may understand and contribute to solve important global issues (Heggen et al. 2019).

Acknowledging children and youth as being and becoming citizens hence influence global citizenship education. Teachers may contribute to the development of children and youth's identity as eco-citizens by making them conscious of our common global home. The development of such practices is challenging. In early childhood curricula, ideas about sustainability may reflect a view of children as being citizens (as in Australia and Norway), a more passive view of children reflecting children as becoming citizens (England and USA), or approach a view of children as world citizens with agency to promote sustainability, as in Sweden (Waldemarian et al. 2017). Through activities as gardening, harvesting, environmental literature reading, and inquiry-based exploration, teachers may draw children and youth's attention to interrelations and analogs between the physical world and ecological relations, the human body, intellect, and social relations, in the environment (Heggen et al. 2019). Likewise, children may draw adults' attention toward objects or issues they overlook, and contribute to the adults learning to practice eco-citizenship (Heggen et al. 2019).

While adults meet and acknowledge children and youth's contributions, involving them in the society may cause a change toward a more sustainable future. Looking at children as different citizens opens up for different forms of participation than adults (Grindheim 2017). If we acknowledge that children already are global citizens and eco-citizens, the question is how children and youth experience, act, and reconstruct their roles as citizens. To understand this, it is also important to understand their perspectives and to understand how they live as beings in the global and ecological society. This is especially important as different citizens, with different citizenships, may produce new solutions to questions we are not able to solve through existing patterns (Cockburn 1998).

Conclusion and Final Thoughts

Global citizenship is an idea about human nature, humanity, and common ethical qualities and values, which has emerged and developed since long back in human history, along with the establishment of democratic systems and human rights, and the growing interdependency and interconnectedness between societies around the globe. Global citizenship addresses a personal and political identity involving loyalty and commitment to the whole world community. An identity as a global citizen will strengthen solidarity and empathy, the recognition of common values, and the willingness to contribute to common goals. Global ecological challenges and concerns about the sustainability of our planet has underlined the global community's common responsibility to care for the Earth and its people, including all living organisms and the world's sum of all ecosystems, both today and in future.

The Agenda 21, the Earth Charter, and the Agenda 2030 with the 17 SDGs are global commitments and plans for action for all global citizens, seeking to strengthen and secure global solidarity, justice, equity, universal peace, and a sustainable future for all. Global citizen education supports these guiding documents for global social justice and sustainability by empowering all learners to develop knowledge, skills, attitudes, competences, and values required for addressing global citizenship. Global citizenship education include essential learning outcomes like to respect and value diversity, to have an understanding of how the world works economically, politically, socially, culturally, technologically, and environmentally to participate and to take action for social justice, equitability, and sustainability, both locally and globally, in an increasingly complex and uncertain world.

The school strikes "Fridays for future" started by the youth Greta Thunberg in Stockholm, in the autumn of 2018, exemplifies the agency of children and youth as global citizens. Since then children and youth all over the world have striked to raise awareness of what they consider the most important issue of global citizenship (Africa Times editor 2019, Sauer 2019).

The complexity of the challenges our society faces (UNESCO 2015) imposes a need for the multiple perspectives of global citizenship from all the global citizens. However, many adults and children are still denied access to the rights and privileges of even a national citizenship, and increased connectedness and reduced inequalities has not been a guarantee so far. Many problems have been caused by the thought-ways of the educated western civilization. Although that mindset will contribute to solutions to the SDGs, new contributors may contribute with new and better solutions. The idea of global citizenship is still a vision that needs common efforts to realize. Accepting the citizenship of new citizens, as well as those already established as citizens, may provide new, more sustainable solutions that we do not see.

Cross-References

- Cultural Diversity
- Empowerment of Civil Society
- Global Policy Making Process of Reduction of Inequality
- Human Capabilities Approach
- Human Rights Law
- Human Rights Policy
- Policies Promoting Diversity
- Political Inclusion
- Public Policies and Inequality

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Reimagining "Collaborative Exploration"—A Signature Pedagogy for Sustainability in Early Childhood Education and Care

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Abstract: The purpose of this article is to identify the components and features of a signature pedagogy for sustainability in early childhood education and care to respond to the call for tradition and innovation in early childhood education. Collaborative exploration is proposed as a pedagogical strategy, a relevant mode of action for sustainable practice. This is a conceptual article that recalls the origins of early childhood pedagogy and uses an exemplary empirical narrative from a recent study to illustrate collaborative exploration in an early childhood educational setting. The outlining of the key features of collaborative exploration is furthermore inspired by dialogism. This article provides an argument against mainstream understandings of pedagogical strategies for early childhood education, which are often based on instrumental program approaches, emphasizing the transmission of information in a traditional classroom setting. It is argued that practices of collaborative exploration are embodied in a way that is aligned with the tradition of child-centered early years pedagogy. Moreover, they are crucial to ensuring that all participating children are given responsive support to become members of ecologically, socially and culturally sustainable educational practices, strengthening children's resilience and agency and inclusive education. The article's value lies in its potential to support teachers' thinking and practice in recognizing and articulating collaborative exploration as a signature pedagogy.

Keywords: signature pedagogy; collaborative exploration; social sustainability; pedagogical style; early childhood education and care

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1. Introduction

Collaborative exploration holds the promise of contextual responsiveness to children's embodied enculturation, meaning-making and formation in play and development in the field of early childhood education and care (ECEC) [1–3]. It is a means to the ultimate objective of reimagining early childhood education and care for social sustainability in the future we want. It is vital to ECEC that we pay attention to the long-term puzzle of inquiry, namely, how to educate the young child for the future, when all we know is the past and present. As teachers, we anticipate the future for the child. We advise, teach, invite and share knowledge without knowing if these forms of knowledge or the content of it will be meaningful and of use for the child in the future. The child itself will be in a position of making meaning in the world in which they live, gradually growing understandings, knowledge and skills through the embodied exploration of the human and non-human environment and through ludic play and exploration. For the teacher to await the future before giving advice, teaching, inviting or sharing with the child would be irresponsible and lead to brutal childhood experiences. A responsible education requires maneuvering responsively to the child's situation with uncertainty in mind [4]. We need to navigate unknown futures with wisdom and envision the future of our children.

As a contrast to the promise offered by researchers envisioning collaborative play explorative approaches, ECEC has recently been under pressure to support a lesser holistic

and contextual approach in education [1]. By focusing merely on the development of children's cognitive and academic skills, which are deemed fundamental for success in school and later in life, knowledge about the value and benefits of play and exploration for children's joy, wellbeing, resilience and perseverance, a driving force in problem-solving and engagement in staying alive, are overlooked. This "down-schooling" pressure has resulted in the influx of indicators supporting the achievement of academic learning goals and has strengthened the Anglo-Saxon educational tradition, which reinforces a narrower understanding of children's development and play-based learning [5,6]. This approach has expanded globally, including in the Nordic countries, replacing the more holistic approach in ECEC [7,8]. An increasing number of children worldwide do not develop mature forms of play before school age, as confirmed by the results of an international review in 16 countries [9]. This "down-schooling" tendency has resulted in inappropriate programs and practices in ECEC, threatening children's holistic development [5], as it downplays or ignores children's natural inclination to move, play and explore.

From the perspective of sustainable futures, it is urgent to talk about the importance of the pendulum swinging back to acknowledge play as a serious driver of exploration, as play brings meaning and a state of flow to activities [10]. Play is part of human nature. It allows us to imagine new possibilities and situations that never existed before, and most importantly, it holds the promise of making the future better. The process of play prepares us for the unexpected and creates conscious and subconscious contingency plans that are agile and ready to adapt to the changing landscape. Most importantly for this article, play is an intrinsically motivated experience evolving around explorative activities, triggering playfulness and endurance in activities, and it does not belong to children alone [11].

Therefore, a premise of this article is the obvious fact that teachers and children in educational settings are sensational human bodies entangled in a world of nature and culture. This obvious premise needs to be addressed, as mainstream education in the Western world is primarily accustomed to educational approaches that target our senses of sight and hearing, while smell, taste and touch have been considered the "lower" senses and not given a place ([12], p. 270). ECEC needs to respond to the child as a whole body, as found in historical documents on the origin of ECEC as well as in contemporary research [1,6,13], frameworks for early childhood and in research.

In contrast to the predominant main narrow approaches, this article proposes, in the name of sustainability in ECEC practices, that we must look for and articulate approaches in line with embodied and relational epistemologies and paradigms that allow continuous inquiry and local sensitivity. Thus, the purpose of this article is to identify the components and features of a signature pedagogy for sustainability in ECEC to respond to the call for tradition and innovation in early childhood education.

Peter Moss [14] argues for the necessity of a post-fundamentalist approach to ECEC, where quality works need to be contextualized, recognizing cultural diversity and aspects of time, space and place. Rather than considering a straightforward solution to ECEC pedagogy, this article presents examples and reasonings following paradigms allowing nonlinear age- and play responsiveness. Such approaches take cultural-historical perspectives into account to elaborate knowledge of teachers' styles and positioning ECEC pedagogy, where sensation [1] and teachers' responsiveness to play [15] and exploration are in focus. Following a cultural-historical approach, ECEC researchers have examined what happens when teachers position themselves within the frame of a play word and what a joint interaction between children and teachers leads to in play [16–18]. These approaches are an alternative to the "down-schooling" approach, valuing sense-making, play and exploration. They espouse a broader view of child development and learning by emphasizing the cultural diversity and resources and embodied practices in which children partake.

Such knowledge is crucial if future policy and practice are to achieve the goal of equity and social sustainability. The Sustainable Development Goals (SDG) include a focus on high-quality education. For example, Goal 4 reads, "Ensure inclusive and quality

education for all and promote lifelong learning" ([19], p. 19). Goal 4.2 specifically focuses on ECEC: "By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education" ([19], p. 19). Related to this statement, it is essential to view "readiness for school" from a broad perspective to avoid a narrow "ready for school approach" to early education [20]. It is crucial for children's all-around health that care, play and learning are connected to the context in which they live. Ideally, early childhood development services must be provided holistically across all relevant sectors to enable young children to thrive [20,21]. While the dominant discourse holds that readiness for school implies training on a set syllabus and rote learning, such approaches are not mentioned in the SDGs. Arguably, Goal 4 can be interpreted as a proposition to learn from holistic approaches to early childhood education. Such a holistic understanding of Sustainable Goal 4 is already implemented in ECEC research, both in child- and play-responsive educational approaches, e.g., [15] and in ecological "common worlds" approaches, where nature and culture are considered entangled [22]. These approaches share a wide relational paradigm that this article follows.

In what follows, I first give a brief introduction of the concept of signature pedagogy and from there draw a line to the first philosophical efforts to articulate exploration of a holistic child-responsive ECEC pedagogy. Second, I present earlier findings from previous and contemporary empirical studies on play, learning and exploration and show how they are interrelated, but not the same. Third, I present an example to illustrate collaborative exploration practice in an early childhood setting. The analysis illustrates the components, conditions and features of collaborative exploration and can support teacher's understandings and strategies for collaborative explorative practices.

Following Mikhail Bakhtin, I adopt an organic and relational epistemological paradigm. Based on this way of thinking, I build an argument that collaborative exploration has been and includes features of an early childhood teacher's ideal practice. This does not mean that this signature is and should be present in all activities. Defining the features of what collaborative exploration entails will serve as a powerful driver of sustainable education. The premise of the child being a sensational human body entangled in a world of nature and culture, where education needs to be responsive to the child. This means that both historical and future orientations will be necessary.

2. What Is a Signature Pedagogy of ECEC?—Introducing the Research Questions

A signature pedagogy is, according to Lee Shulman ([23], p. 55), "a set of assumptions about how best to use certain forms of knowledge and skills". It is possible to identify the signature pedagogy of a profession by analyzing (1) a surface structure, specific ways of asking and answering, ways of approaching, taking initiative and withdrawing. We can also see a signature pedagogy in (2) a deep structure—a set of assumptions about how to use knowledge—and in (3) an implicit structure—ethical attitudes, values and dispositions. It is also possible to identify it (4) through an awareness of what it is not. Shulman is renowned for identifying the signature pedagogy of teacher education [24]. In his research, Shulman identified effective and wise practices in the teaching profession. He differentiated between wise practice and ignorant practice and advocated for deeply enhancing wise practices [23].

Inspired by this encouragement to look for wise practices, I examine Shulman's four structures to ascertain a set of features depicting pedagogical practices that will identify a signature pedagogy of ECEC that I also believe to be a sustainable pedagogical practice. I, therefore, inquire into the deep structure by asking the following question: *What are the assumptions regarding how early childhood teachers use knowledge?* I answer this question by examining the influential philosophical, psychosocial text and contemporary studies that shed light on the underpinnings of ECEC practice. Furthermore, I study the ethical attitudes, values and dispositions found and the surface structures of teacher behavior by asking *what the features of teacher practices are when engaging in explorative activities with children.* I illustrate an answer to this question through an analysis of an exemplary case.

Shulman discovered that despite institutional differences, teacher–students learned to think like professional teachers across institutions. Students studying to be kindergarten teachers will learn about child development, play and learning, the origin of ECEC and the current frameworks that guide early childhood institutions today. They will also obtain knowledge in a particular area. Shulman found that, while different professional universities had their own profiles and priorities, their public mission statements were alike, often a commitment to justice and fairness [23].

In looking for assumptions regarding these underpinning structures and values, studies on Norwegian kindergarten teacher education can serve as a mirror to his findings. Through a series of studies (2014–2016), it was found that common motivations of kindergarten teacher students (N-6410) for studying to become a teacher in ECEC were intrinsic values, such as the joy of working with children, finding meaning in life by supporting children and being inspired by children. They scored very low on extrinsic motivation, so salary, status and bonuses were not important for their career choice in the kindergarten teacher profession [25]. Such idealistic motivations resonate with the first philosophical efforts of articulating a holistic child and nature-responsive ECEC pedagogy. Therefore, let us turn to the intrinsic underpinning of values and features found in early attempts to find new scientific approaches based on a balance between nature, man and society.

3. Froebel as Philosophical Underpinnings of a Holistic Approach to ECEC

The 17th century was characterized by rapid developments in science. Cartesianism (dualism of mind and body) resulted in a tendency to make man the ruler of nature [26]. In the work of the pedagogue Johan Amos Comenius, there is a strong emphasis on the need for freedom, and his legacy is contrary to Cartesianism: a holistic conception of professional education used for creating various experience, leading students of professions to appropriate solutions to diverse situations they will encounter in their work. In Comenius's *Orbis Sensualium Pictus*, he made an effort, through the encyclopedian genre, to enrich children's understanding by presenting a wide range of sciences. A visual representation of the world inspires children to use their senses [27]. Friedrich Froebel opposed the Cartesian view of the mind as being wholly separate from the corporeal body, where sensation and the perception of reality are thought to be the source of untruth and illusions, in his philosophical and didactic ("didaktik" in German) approach to educating the youngest of mankind, the children.

Froebel (1782–1853) practiced as a teacher, a teacher educator and a writing philosopher. In his autobiography, written as a long letter to the Duke of Meiningen, he writes the following: "To stir up, to animate, to awaken, and to strengthen, the pleasure and power of the human being to labour uninterruptedly at his own education, has become and always remained the fundamental principle and aim of my educational work" ([28], p. 11). Here, he states his educationalist signature as an engaged individual, driven by and encouraged by inner strength. This message of bringing life-joy into education is explained by Froebel himself in his autobiography and by his biographer, Bertha Wulff [29], as a building journey and a drive to make childhood life more human than his own childhood memories. His statement can be understood as a refutation of his own strict upbringing and first schooling by his father, the local pastor in his home village.

According to Froebel's different "didaktik", the child should have a teacher who encourages imagination and invites curiosity about different forms life can take, a dwelling of lived harmony with the cycles of nature and the cosmos. Froebel himself articulates his "didaktik" for the educator (here in the meaning of both teacher and parent) in *The Pedagogics of Kindergarten* [30].

This was written as a guide for parents, nurses and "kindergarteners" to prevent adults from destroying the child's "faith and confidence" ([30], pp. 58–59). From these extracts, we can see how Froebel himself was driven by an urge to bring education to life through engagement in the self, the child and the ecosystem in which we all exist. His practice was that of an engaged teacher broadening the child's perspectives and

experiences through play, games, songs, dances, stories and crafts and engaging with nature and the environment.

"Kindergarten" in Froebel's vision meant "a garden for children", where children experience the cycles of nature and the cosmos of the ecological environment. It also meant "a garden of children", a space where children could meet peers to play. In his vision of the kindergarten, the teacher could learn from the children, and the children could learn from the teacher. This is evoked in his well-known phrase: "Kommt Lass Uns Unsern Kindern leben" (Come let us live with our children) [31]. This slogan expresses an encouragement to be responsive to the child, a view of the child and of adults, whether adult or teacher, praising joint engagement in children's lives.

In a study of the English translations of "Education of Man" [31], we found that Froebel used synonyms for exploration, such as play and discover, and description of pedagogical practice. What is of special interest to our study of signature pedagogy as collaborative exploration is his concept of "the invisible third". He explains "the invisible third" as a space where the pedagogics of kindergartens lie in a practice where the teacher and child create a common ground of curiosity, attention and exploration. A pedagogy for explorative practices will always have "something worth exploring", such as content, what Froebel calls "the invisible third". Froebel imagined that certain kinds of play materials were shaped in line with the universal shapes of geometry, what he called "gifts", which would teach the child to discover the connection between human life and life in nature. In turn, the gifts would create a bond between the adult and the child, who play with them; this bond is referred to as "the invisible third".

Even if Froebel himself did not use the concept of exploration to describe the pedagogics of kindergartens, those who later translated and actualized his text into contemporary times seem to agree upon this "didaktik" as collaborative and explorative, as pointed out by the Froebel Institute's 200th-year celebration of. Here, The Froebel Institute gives examples of how the pedagogic of Froebel was practiced. Geographical knowledge was acquired by walking along the riverbed from the source of the flow to a larger stream, by sitting on top of a hill and making a map: "Such exploration extended to plants, trees, insects, birds and stones, each studied minutely" ([32], p. 6). Such interpretations of Froebel are also found in the research of experts on Froebel when outlining Froebel's legacy in children's play and learning. Kindergarten play can be considered as exploring, which materials allowing children to engage in activity, and through exploring the play material, children develop emergent understandings [33].

Activity, imagination and creativity are words associated with exploring, and they are relevant in establishing kindergartens as pedagogical institutions as well as indications of a possible bond between the teacher and child while exploring the play material ("gifts"). In *The Pedagogics of the Kindergarten* [30], Froebel describes the importance of considering the presence and absence of an object and how this triggers curiosity and imagination. Froebel argues that the teacher should perform repetitions of activities, but it is important to vary the way of playing with the same object; for example, as outlined in *The Pedagogics of the Kindergarten* [30], by hiding a cube in her hand while she sings to the child: "I see now the hand alone. Where, oh, where can the cube be gone" ([30], p. 84). With gaze and attention, the mother (teacher) leads the child to her hand and the child's hand. The mother (teacher) continues by opening the concealing hand and singing, "Aha! Aha!—My hand has hid the cube with care, while you looked for it everywhere. See it is here! Look at it dear!" ([30], p. 84). The play continues by only concealing parts of the cube, and, in these ways, by singing, hiding and concealing, Frobel argues that the mother (teacher) is bringing the child into more intimate connection with the expression of a cube [31]. He carefully describes how the song, the playful attention, the encouragement of imagination and the close relation between the mother (teacher), the child and the object are described in the activity.

With the guidance of Froebel's philosophy of "the invisible third" and descriptive "didaktik", especially in *The Pedagogics of the Kindergarten* [30] as well as in later Froebel

interpretations, we have a clear historical model of a pedagogy that is the language of 2021 can be conceptualized as "collaborative exploration". Froebel offers a "didaktik" and a call for education to be responsive to and a part of the child's world; he cannot guide us on the more specified understanding of exploration per se.

The above inquiry into the pedagogy of Froebel reveals certain specific ways of acting; the knowledge of the child and the environment is crucial, and the mode of the teacher is to be engaged in the pedagogical act, with joy and excitement to learn from the child's interest or lead the child to new discoveries. These are the assumptions about how the early childhood teacher uses knowledge guided by Froebel. We can also find strong ethical attitudes and values, such as a deep recognition of and respect for the child and the ecosystem (holistic cosmos) in which the teacher and child live. The features of the teacher's pedagogical style that stand out are playfulness, self-awareness, walking alongside children to learn and discover and introducing children to the natural shapes and forms of lives. It is also possible to identify what a signature pedagogy, according to Froebel's philosophy and "didaktik", is not. Froebel contradicts any punishment or instrumental rewarding of the child. Following Froebel, punishing children is *not* the signature of a kindergarten teacher's practices, nor is a strict transmitting of orthodox knowledge from teacher to child.

As shown above, Froebel gives very explicit advice and descriptions of what can be called "collaborative exploration". Nevertheless, an extended inquiry will further sustain the conceptualization of the concept of "exploration" as collaborative and the promise this concept holds for understanding the current complex situations of kindergartens and the signature pedagogy of contemporary kindergarten practice.

4. Conceptualizing "Exploration" in the Wider Context of ECEC

The verb "to explore" seems to have generally positive connotations. The commonly shared meaning could be that to explore means to connect humans with the elements of the world and beyond. As the explorer and astronaut Buzz Aldrin wrote, "The urge to explore has been the primary force in evolution since water creatures began to reconnoiter the land . . . // . . . Living systems cannot remain static; they evolve or decline. They explore or expire. The inner experience of this drive is curiosity and awe—the sense of wonder. Exploration, evolution, and self-transcendence are only different perspectives on the same process" ([34], p. 1). The famous astronaut, the second man on the moon, notes that the inner drive of exploration is "curiosity and awe—the sense of wonder". He argues that exploration is the drive of evolution and, at the same time, the drive to expand personal boundaries. Self-transcendence potentially includes experiences of spiritual ideas, such as considering oneself an integral part of the universe. This same sense of wonder, the urge to explore, was also illustrated in the vignette above.

Exploration is also used as a positive verb in early childhood frameworks (e.g., [35] Specifically, it is a concept used to indicate the nature of children's activities in kindergarten, often as a word connected to play and to learn. A study of the underpinning structures of play and learning in four guidelines and frameworks (Confucius and Nordic), China, Hong Kong, Finland and Norway, revealed that play and learning are the dominant concepts in all frameworks and that learning is described as multifaceted in all of them. Despite cultural differences, there are strong similarities on a framework level, as all cultures aim to cultivate all-around development. The differences found were that Confucius countries pay more attention to learning to know, while Nordic countries emphasize learning to do and learning to be [35]. Exploration can be a mode of action indicating learning to do. If so, this study indicates that Nordic frameworks guide teachers to activities characterized as collaborative exploration to a larger extent than Confucius frameworks.

Exploration in practice can also realize such idealistic models of the process in activities; however, exploration can also be experienced as harmful. For example, when values are disconnected or disputed, exploration can be exploitive, such as when the topic, land or activity invades or destroys others. Harmful exploration can be observed in early years institutions, as described in the study of meaning-making in play narratives between

toddlers. Ongoing meaning-making processes, which can be described as explorations in-between joy and fear, were observed between children when they explored what happens when the lights are turned off and on repeatedly in the playroom and when sudden switches between dark and light occur. When some children started to cry, the child in control of the switch was more in a mode of exploration—listening to what happens when it gets dark and then what happens when it gets light again [36]. This activity happened in what seemed to be a play activity, but the one child in charge of the switch actually spoiled the play activity for the other children. A similar ambivalence and complexity of explorative activities were found in a case study of children's play exploration. Ruth Ingrid Skoglund analyzed how children explore relations that she described as ongoing inclusion and exclusion processes in play activities, which can seem like a complex exploration of power relations [37]. These studies offer narratives where exploration can lead in skewed directions, requiring teachers' responses to intervene and provide guidance.

The work of Corinne Hutt and her team has brought new understandings to the interrelationship between play and exploration [38–40]. Based on empirical observations of children's play, they created a taxonomy of play, attempting to categorize play into different types. They identified the following three main categories of play: (1) epistemic play, within which children learn and explore the world and its properties; (2) ludic play when children are using their imaginations but are not necessarily learning; and (3) games with rules, that is, organized activities. Hutt and her team [39] described how modes of engagement vary over time, even with the same toy. They characterized the first encounter with a toy as epistemic engagement, signified by a serious focus on an intense and attentive inquiry. Meanwhile, they categorized exploration as a subdivision of epistemic behavior, classified in investigation and inspection. When children begin to understand the toy, they change to what Hutt calls "ludic" engagement, which is more relaxed, and they use their understanding of the toy in their play activity. Ludic behavior is, according to these researchers, subdivided into two main categories: symbolic or fantasy play and play with repetitive elements. Symbolic play may be further subdivided according to the focus of the fantasy. The pretense can be directed toward an object, such as when a child arranges a row of chairs that serves as bus seats (fantasy object), or it may involve a character shift, such as when a child steps into the role of a bus driver. Repetitive play implies monotonous patterns, such as when a child uses the pail and shovel to make the same shapes in the sandpit over and over again. If the child adds some new elements, such as bringing a piece of wood to stabilize a series of pail-sand forms into construction in the sandpit, it can be called innovative. When adding new material into the sand construction, the child is combining skills. There is an extension and a development in the play. When children's activities are continuously repetitive, and no novel objects or changes of patterns occur over time, the play, according to Hutt, becomes perseverative, with a risk of being static or manic ([39], p. 286).

The teacher can respond to the situation with awareness of previous situations, and afford a new object, or a new idea, to the child. Hutt and her team gathered groups of young children to experiment with a special box, which had been fitted with different devices so that a sound or light would be released following certain manipulations. Hutt's research on children's play with a "novel object" led the team to suggest that children would play in exploratory or experimental ways for a while when afforded a novel object. When they were playing with a novel object, their mode of action indicated a question: "What does this do?" Hutt [39] saw this as an explorative activity, as the "epistemic" phase of the play. If the child continued the activity after exploring and getting to know the novel object, the child would probably then use what they had discovered to play in fun or "ludic" way, as if asking, "What can I do with this?"

Of relevance for this article is that if a situation of repetitive play is observed by the teacher, it can arouse a teacher's initiative to collaborate with the child. When a teacher takes such an initiative, which endures through the activity with the child and the novel object, the result will be collaborative exploration. The teacher's involvement makes a

difference in the activity. The point is not for the teacher to take over, but rather, on one hand, to highlight the opportunity to expand the child's knowledge through their exploration of novel objects or ideas, and, on the other hand, to enrich and extend the opportunities to play in a ludic manner, have the child take control and agency of the novel object or idea.

The inquiry into the ground-breaking research of Corrine Hutt and her team reveals certain features of play, as they make a distinction between exploration as the epistemic and serious face in play, characterized by a serious mode, and symbolic play, as a ludic form of play, characterized by a mode of joy and relaxation. Both will motivate the endurance of an activity. In fact, Hutt challenges the common understanding that "play is the work of children", meaning that play is natural—that it is for every child. On the contrary, her research on brain activity in various activities showed that play occurs only in certain exceptional circumstances. She claims that many animals and children do not play in the ludic sense at all ([39], p. 291). Furthermore, she argues that play is a luxury and that, for play to occur, the person must be motivated to arouse feelings. There is a parallel between seeking stimulation and play. Both are accompanied by positive effects, and they both involve exploration, investigation and manipulation of the environment. Her distinction between play and exploration is not as clear. Hence, are there any distinctions between play and stimulus-seeking behavior as exploration? The answer she gives is that play is clearly a stimulus-seeking behavior, yet not all stimulus-seeking behavior is play. She concludes with the notion that the primary function of play is to keep the neural and behavioral systems primed and active and that the absence of play, whether in an epistemic or a ludic sense, makes it likely that the individual will become inattentive and drowsy, possibly leading to sleep.

Bringing these distinctions into a perspective of pedagogical impact for the teacher makes sense. Play modes of any kind, whether in an epistemic, gaming or ludic sense, are necessary for growth, living and development. Knowledge about variations of play modes and typologies of play is important for early childhood teachers. Observing and identifying whether children play, and, if they do, in what ways, can alert teachers to take initiatives in the pedagogical act to enhance the play duration and engagement and break stereotypical patterns of behavior, providing a stimulus to the activity and collaborating with the children to arouse effects and thereby extend the children's endurance and positive engagement in life. Children's explorations are, according to recent studies on play explorations, an inductive process, requiring openness and flexibility, creativity and imagination, where they search for new ideas or perspectives [2]. According to our own studies of children's exploration in educational settings, it needs to be understood in relation to pedagogical cultures [3].

Through a recent case study, seven features encouraging and supporting co-explorative practice were identified. The following seven features arose in the analysis following a series of transitional events in a kindergarten over eight years while encouraging and supporting a collaborative explorative practice [41]:

1. Institutional anchoring of content that opens the way for exploration, transformation and expanding content;
2. Personal engagement by working with formative and bodily awareness and valuing personal knowledge and story;
3. Local anchoring of content by working with the local community; plan for and act upon cultural customs;
4. Imagination and creativity by working in ways that include planning, new ideas and theorizing;
5. Initiations, responses and follow-ups inviting children and families into personal stories and increasing their awareness of local and global artifacts;
6. Collaborative investigation through common engagement, staff and children investigating questions deriving from events, activity and projects;

7. Establishing a conversational genre for exploration as dialogical and philosophic approaches in a participatory space of action.

The pedagogical style of collaborative exploration, which in this article I call the signature of the ECEC teacher, which best supports children's exploration, refers to modes of action by the teacher that afford children the possibilities for initiatives that are adopted and developed through interaction. This mode of positioning, where the teacher responds and follows up on children's emergent explorations, will be habituated in open pedagogical cultures, where explorative and transformative modes of actions are valued by governance and leadership, anchored in institutions. A crucial characteristic found in the above-mentioned case study was the personal engagement of the teacher.

Hence, far, I have examined the cultural underpinnings of a signature pedagogy for the early years by drawing on a selection of early philosophical, psychological and contemporary studies that shed light on the values and the deep structure of an early childhood educator's signature pedagogy. In the following, I will seek to shed light on what constitutes a personal engagement in pedagogy.

5. Adding a Dialogic Epistemological Framework to Indicate the Teacher's Style of Collaborative Exploration

A Bakhtinian framework can add understandings relevant for pedagogical practices, the enactment of exploration as dialogical engagement and the drivers for engagement in pedagogical activities. Mikhail Bakhtin states that all the diverse areas of human activity involve using language as diverse as the areas of human activity. He mentions the following three aspects of utterances in language: thematic content, style and compositional structure. These are inseparably linked to the whole of the utterance and are equally determined by the specific nature of the particular sphere of communication: "Each separate utterance is individual, of course, but each sphere in which language is used develops its own relatively stable types of these utterances. These we may call speech genres" ([42], p. 60). Bakhtin's notion of speech genres must not be understood as merely analyzing speech acts. Following Per Linell's understanding of dialogism, a speech genre must include speech as body [43] and shown in styles and modes of actions and positionings. A pedagogical style is, therefore, a continuous practice, although it will also include cracks, stops or turning points [44].

Following this line of thinking, exploration practices can be verbal or silent, driven by the body and performative actions. Linell insists that "situation-transcending" phenomena precede any interaction. I, therefore, suggest that framing the collaborative act means providing resources for it, and, in turn, the collaboration will be incrementally transformed through the mode of explorative collaboration. Linell argues that research on communicative activity types could be used to ask questions that cut across unhelpful disciplinary boundaries and encourage inquiry that studies interpersonal and institutional interaction problems to find activity types and communicative projects as solutions to institutional demands ([43], p. 462).

The concept of "participatory space of action" [36] (pp. 95–99) opens a dynamic space of action. In educational institutions, power will be exercised for the simple reason that teachers will have a mandate, a call or a task; therefore, an educational setting will always delimit what is possible for the teacher to do and not do. How an activity will develop depends on the teacher, the children participating, the material and the cultural traditions. A participatory space of action is opened if, for example, collaborative exploration is facilitated and extended. When shared explorative activities begin, a participatory space is opened with some particular styles or modes of action. Bakhtin writes, "We learn to cast our speech in generic forms, and when hearing other's speech, we guess it is a genre from the very first word" ([42], p. 79). Bakhtin's object of study was primarily literary texts, but he also served as a schoolteacher, and his essay "The Problem of the Speech Genres" [42] can be read through the lens of dialogic pedagogy. In his essay, he deals with the difference between language as a self-contained semiotic system (Saussurean linguistics) and language

as a living dialog, understood as fluidity between language systems (translinguistics). He argues that the literature draws on genres that exist in communication, in the living dialog, what he calls primary genres. According to Bakhtin [42], any understanding of live speech and utterances is inherently responsive; the listener becomes the speaker. Those who speak will be oriented toward an actively responsive understanding. This addressivity will be part of the speaker's speech plan [42]. When a teacher is responsive to the child's world, to a gesture, an utterance, a movement or a mode of action, it follows that, in a mode of exploration, the teacher takes into account the background of the child or the immediate event. Teachers' contextual knowledge of children's experiences, such as their sympathies and antipathies, will be taken into consideration when the teachers position themselves, enacting language genres and pedagogical styles. Therefore, collaborative exploration indicates a mode of action with specific features, as pointed out above. As Hutt [39] found, exploration is a mode of action categorized as investigation and inspection but can, over time, move and transform between the epistemic behavior of exploration and the ludic mode of engagement. Following Bakhtin's view of language as communication genres [42], I see collaborative exploration as a primary genre, where both children and adults navigate a landscape of utterances by sharing the same place and situation but meeting up as different bodies with different histories.

To further explain what collaborative exploration can mean as a pedagogical style—a pedagogical positioning of the teacher—I will draw on Bakhtin's metaphor of the loophole, as it can signify a dialogical understanding of pedagogy as dynamic. Through this metaphor, Bakhtin indicates that a loophole signifies a side glance, or a shift of focus, where the person (the hero) can be ambiguous to events and even to his own writings about loopholes ([45], pp. 233–234). The metaphor presents pedagogy as movement, process and change. The loophole indicates an esthetic shape of a teacher's movement and maneuvers. Moreover, the metaphor implies the possibility for a teacher to adjust to the multitude of voices and events taking place in practice. Central modes in pedagogical actions will be enacted through the lived body [3]. This means that the teacher's environment is not a realm of separate objects, but rather that teachers are already involved in landscapes through their bodies being positioned in place and space [46], in activities, in relation to people. Persons are bodies positioning themselves in certain ways, in certain places, and always in relation to something or someone. Being bodies involves movements, sensations, using artifacts, utterances, materiality and symbols. In a pedagogical activity, the children and teachers are already involved in these components, which constitute conditions for the co-creation of meaning and for discourses [3]. The characteristics of pedagogical practices that facilitate collaborative exploration include openness, inquiry, collaboration, curiosity, multiple ways of knowledge, process orientation, co-creation of meaning, improvisation and variation [3].

6. Illustration: Teacher's Style in Collaborative Exploration

6.1. Method, Ethics and Analysis

The following illustration is based on an excerpt from empirical observational data, an event related by a teacher–an artist working in a kindergarten in an art project about rewilding nature—a participatory art project. The art project lasted for one year (2019–2020), following nature's seasons and working with children and staff to open the senses, to move, to explore and to express through children's photos, stories and drawings. The teacher–artist, was also a research assistant in an ongoing research project about exploration and cultural formation in kindergarten. The information was provided to parents in suitable languages, and consent was received for the teacher–artist to inhabit this double role, giving the research project access to written notes from the teaching arts project. The project's documentation was produced in a series of 16 excursions, with 60 written pages in total. An additional notebook consisted of stories about the teacher's dialogs, observations, and reflections. The illustration to be presented is a narrative reconstructed from observational data from this notebook. The research project followed the art project, but the data extracted

for research purposes were limited to the research assistant/teacher–artist participant's observational data (written notes) to avoid the distribution of personally-identifying photos. The head of the kindergarten obtained consent from parents and checked the anonymity of the data before they were transmitted for research purposes.

The trustworthiness of the observational data and descriptions given by the teacher/research assistant were validated through the preparation procedures of the ethical committee and at regular meeting points during the participatory fieldwork. Over the year, we met 14 times for dialogs and inquiries to better understand the impact of weather landscapes, the children and the pedagogy of the early years' institutions. A total of 18 children, all four years of age when the project started, and two additional teachers joined the excursions.

The narrative was rewritten by the author and validated by the teacher, following the methodological procedure outlined by Barbara Czarniawska [47]. Seven steps are followed in the analysis; 1. The teacher and researchers both followed how the stories were made, 2. The teacher wrote the first version of the stories, 3. The researchers provoked more stories over 14 meeting points; these versions were written down both by the teacher and the researcher, 4. Together the teacher and the researcher interpreted the stories in dialogs; what do the stories tell us? 5. The researcher deconstructed selected stories, 6. The researcher put together new versions of selected stories based on contextual information given over time, 7. These new stories were validated by the teacher and put together with other stories and with other information. The narrative text is considered to belong to other texts; in such a dialogical view, the researcher looks for clues in the narrative texts, including conversations with the teacher ([47], p. 663). This procedure elicited various narratives where the teacher's modes of action as dialogical, engaged, and collaborative oriented with the children became obvious [48]. The following story was selected for illustration and analysis. The narrative was rewritten by the author and validated by the teacher, following the methodological procedure outlined by Barbara Czarniawska [47].

6.2. The Story of What It Means to Be Alive

How can we know that we are alive; what does it mean to be alive? These questions came up in a conversation I had with the children one day, and my immediate answer to them was that we must breathe to live. I found a feather, and the children could try to breathe on the feather to check if they were alive. All the children in the group made the feather move by breathing on it, and we could with relief establish that all of us were alive. Several more questions about what was alive and what was not came up, and it was not easy to find good answers to all their questions. We, therefore, agreed that we would go out into the woods the next day to find out if we could find anything alive there. It was winter, and a light snow cover covered the ground, so I was not quite sure what would be the result of our little expedition the next day. We could not expect to find small insects. We did not go that far, only about 100 m, right outside the fence in the kindergarten, to a small wood. We stopped at one of the big trees there. "Is the tree alive?" I asked. It became quiet. Everyone looked like they were listening to something. However, we did not hear any breathing sounds from the tree, so maybe the tree does not breathe, maybe the tree did not live? Some of the children went close to a tree, touched it, listened and started sniffing the bark. "Is the tree breathing?" I asked and gently touched the bark of the tree. The children did not respond immediately, but then a boy wondered if he heard a mouse breathing. We listened again, and another child stated that the tree could not breathe because it does not have a mouth. "Maybe it can breathe in other ways?" I suggested. "Maybe through the leaves?" However, there were no leaves on the trees since it was winter, so I could not prove myself right at that moment. We, therefore, instead started to feel the moss, and after a while, we moved on to a small ridge. I suggested we lie down for a while to think about what it meant to be alive. We lay down in star format and breathed deeply together. "I think the trees rest in the winter", I said while lying there. "I think they rest, as we do now. When spring comes, and the leaves return to the trees, we can see that the tree is alive."

We breathed deeply in and out for a little while longer, and we agreed that we were still breathing and that we believed that the forest was breathing slowly in the winter.

6.3. Components and Features of Pedagogical Style in the Narrative Event

Analyzing the story following a dialogic approach, where bodily signs and positioning the body are valid as speech utterances [43], open insights into practices. Furthermore, the analysis follows components highlighted in the "Exploration as dialogical engagement model" [3], validating teachers' actions and initiatives, children's responses and initiatives, place, movement, sensation and time. These clues and components made it possible to identify features of the pedagogical culture and the teacher's style. By this approach, a surface structure of a signature pedagogy [23] was highlighted; specific ways of asking and answering, ways of approaching, taking the initiative and withdrawing. Components and conditions refer to relatively constant characteristics of the practices in this kindergarten. These components in culture create conditions for teaching practices. A pedagogical style is a continuous practice discovered within cultural practices [44], and features of pedagogical style refer to modes of action, movements and positionings.

The above analysis illustrates collaborative exploration by highlighting 11 components and conditions in the educational culture and features of the teacher's pedagogical style.

6.4. Culture of Excursion Inside and Outside of Kindergarten

In the case of kindergarten, there was established a culture of excursions as a regular activity (Table 1, number 1). Availability to various components afforded by local natural landscape area, as well as the culture of discovering and rediscovering processes and material in nature. A variation of activities evolved over time, some of them spontaneously (finding a feather and breathe) and others planned (the follow-up excursion into the woods the next day). Consequently, walking alongside children, paying attention to their movements and utterances and material and artifacts available in place and landscape were a pedagogical style of the teacher. As Hutt [39] found, exploration is a mode of action categorized as investigation and inspection, movement and transformations in-between an epistemic behavior of exploration and the ludic mode of engagement. The event described above unfolds what happened when a responsive teacher followed up children's curiosity about what it means to be alive.

The culture was an open curriculum in teachers' alertness to children's initiatives and enactment of responsiveness (Table 1, numbers 2 and 4). The teacher responded immediately to what it means to be alive, and a dialogical conversation evolved over days. The case has similarities with the visions for Froebel's "Kindergarten", where children experience the cycles of nature and the cosmos of the ecological environment. Froebel's vision included reciprocity where the teacher could learn from the children, and the children could learn from the teacher [31].

The teacher's mode of action was a whole-body sensation approach, as we can see in his encouragement to blow the feather, smell the tree and feel the moss. There was established a culture of shared movement and attention (Table 1, numbers 3 and 8). When they stopped at one of the big trees, it became quiet: The teacher reports that everyone looked like they were listening to something, but they did not hear any breathing sounds from the tree, so they started to wonder, touch, listen and sniff the bark to explore. The teacher and the children were bodies positioning themselves and engaged in relation to the tree and each other. This is what Froebel called the invisible third [13,31]. They were bodies involved in movements and sensations [14,46].

Table 1. Components and features of teachers' pedagogy in the narrative event.

	Components and Conditions	Features of Pedagogical Style
1	Culture of excursion as a regular activity inside and outside of kindergarten	Walking alongside children, paying attention to their movements and utterances ("What does it mean to be alive?") as well as place and landscape (found a feather)
2	Culture of open curriculum in the sense of teachers' alertness to children's initiatives and enactment of responsiveness	Teacher responds immediately to children's initiative and curiosity: "We must breathe to live".
3	Culture of shared movement and attention	Teacher picks up the feather and demonstrates by blowing on the feather and inviting the children to blow on it to check if they can breathe, make the feather move as sins of being alive
4	Culture of open curriculum in the sense of flexible time management	Teacher acknowledges the range of questions from children first by attempting to answer and then promising to search for evidence of life in the woods the next day
5	Culture of dialog and negotiation	Finding some of the questions from children difficult to answer properly; negotiating and agreeing upon further investigations
6	Culture of acknowledging uncertainty	Teacher reveals uncertainty: "It was winter, and a light snow cover covered the ground, so I was not quite sure what would be the result of our little expedition the next day."
7	Culture of the open curriculum in the sense of being open to teachers' knowledge and willing to contribute to expanding children's worlds, experience and knowledge	Stopping by a tree, the teacher asks the children, "is the tree alive?" (shared exploration)
8	Culture of whole-body sensation approach	Teacher encourages and allows children to listen, smell, touch and feel the tree. Later, the teacher encourages lying down in the moss, to feel the ground and taking deep breaths to feel the body being alive
9	Culture of picking up on children's play imagination and meaning-making	When a child can hear a mouse breathing, the teacher takes the imaginative suggestion seriously and listens once more.
10	Culture of picking up on children's search for scientific knowledge	When a child suggests that a tree cannot breathe because the tree does not have a mouth, the teacher takes the search for truth seriously and suggests that there are other ways that trees breathe through their leaves
11	Cultures for living in the reality of natural cycles. Nature conditions what is possible to experience	Since this event took place in the winter, there were no leaves, so the statement could not be proven at this particular event through experience and needs to be further followed up at another stage of the natural life cycle

There was established a culture of dialog and negotiation (Table 1, number 5). When the teacher and the children listened to find out whether a tree can breathe, one of the children stated that: *the tree cannot breathe because it does not have a mouth*. The teacher suggested: *Maybe it can breathe in other ways? Maybe through the leaves?* However, there were no leaves on the trees since it was winter, so the teacher could not prove himself right at that moment. He now allowed uncertainty in the dialog, and by this feature, he established a culture of uncertainty (Table 1, number 6). To allow uncertainty in education can allow exploration. As Hutt and her team indicate, the point is not for the teacher to take over but rather to highlight the opportunity to expand the child's knowledge by exploring novel objects or ideas [40]. The teacher needed to search for new knowledge to respond to the child; how was it possible to prove to the children that a tree without leaves and a mouth could still be alive. This was not only difficult to understand, but it was also complicated for the teacher to explain. This space of uncertainty and openness inspired children's imagination. A child could hear the breath of a mouse.

The teacher took this utterance seriously, and this indicates that there was established a culture of picking up on children's play imagination and meaning-making (Table 1, number 9). To give attention to the fantasy (for the child, it may be a fact) of hearing a mouse's breath that cold winter day is a symbolic play and pretense mode of action. This mode of pretense action was in this narrative is interwoven with another utterance from another child. When the child stated that a tree could not breathe because it does not have a mouth, the teacher also took the child's search for scientific knowledge seriously. Further exploration was necessary and realized later. This feature of practice indicates a culture of picking up on children's search for scientific knowledge (Table 1, number 10).

Finally, there was established a culture for living in the reality of nature cycles (Table 1, number 11). This teacher practiced what Froebel suggested; the teacher should encourage imagination and invite to a mode of action characterized by a curiosity about life forms and the cycles of nature [32]. Nature conditioned what was possible to experience. In the cold winter weather, the teacher suggested they lie down for a while to think about what it meant to be alive. He positioned the bodies in a star format and created a shared moment where they breathed deeply together.

These features of the pedagogical style are characterized by a deep understanding of the pedagogical task. The teacher positioned himself between responsibility to all children in the group and the group dynamic, which implied managing both the time and place.

7. Conclusions

The formulations of collaborative exploration as a signature pedagogy of the early childhood teacher are still tentative and preliminary and, as such, need to be further substantialized through future empirical work. In this article, I have suggested that collaborative exploration can be considered a signature pedagogy suitable for early years education. To substantiate and ground my argument, I first presented a concern about the worldwide "down-schooling" tendency and argued for an alternative approach through philosophical, historical and contemporary research.

Following central components from early pedagogics for the early years, it was established that the ideals were *not* used for transmitting knowledge from teacher to child, *nor* were punishment and strict discipline. On the contrary, 17th and 18th-century thinking opposed an instrumental and strict approach to education and argued for walking alongside children with playfulness to guide them and help them to discover.

Following Bakhtin, I adopted an organic and relational epistemological paradigm to strengthen the argument that collaborative exploration has features of an early childhood teacher's ideal practice. Such an ideal holds the promise of a sustainable future, as collaborative exploration simultaneously takes children's imagination and play seriously while paving the ground for following up on children's curiosity and endurance in investigating and searching for scientific truths about the world in which they live. A pedagogy of collaborative exploration will support resilience and innovation because it acknowledges uncertainty and drives meaning-making and the continual pursuit to find answers and solutions.

A signature pedagogy is understood as a set of assumptions about how best to use certain forms of knowledge and skills. This article demonstrates a surface structure characterized by specific ways of asking and answering, approaching, taking initiative and withdrawing. The example case, a narrative event about what it means to be alive, illustrated a culture for open-ended curriculum. Here, we could see how the teacher attempted to validate children's play and imagination as well as their continuous meaning-making and search for the coherent scientific truth about the world in which they live. This suggests that a pedagogy of collaborative exploration goes beyond the dichotomies of play-based or learning-based curriculum and of seeing ECEC ideals as either child- or adult-centered; rather, a pedagogy of collaborative exploration acknowledges that pedagogy implies uncertainty. Therefore, a central feature of the positioning of a teacher needs to be movement and maneuvering between a complex mix of demands, conditions and

initiatives. Features of the pedagogical style include attentiveness, shared meaning-making alongside children, acknowledgment of diverse forms of knowledge and maneuvering between children's play imagination and their search for scientific truths [49,50]. Moreover, there must be a deep understanding of the pedagogical task, whereby the teacher balances the responsibility to every child in the group and the group dynamic, managing both time and place (chronotopes) [43] in a whole-body approach. In a whole-body approach, the teacher focuses on relations to each person in the group as well as to the sensational world, which can include both human and non-human relations [51,52].

The article reveals a deep structure of the early childhood teacher's ideal pedagogy, a set of assumptions about how to use knowledge and implicit structures, such as attitudes, values and dispositions, found in the literature, which provide a foundation for ECEC pedagogy. Comenius' philosophy, as well as Froebel's arguments and contributions, arose in the 17th and 18th centuries in opposition to the Cartesian view of the divide between mind and body. Children's sensations and perception of reality—and how understanding and meaning-making are developed through sensation, experience and action—are crucial for their growth and development. This view is supported by various researchers from various fields, including brain research, play and design, as well as developmental psychology, some of which are presented here.

Following Shulman's [23] advice of identifying effective and wise practices in the teaching profession, I draw further on dialogism, a philosophical tool allowing utterances to be responsive and entangled in history and future orientations, as every utterance is also an utterance *to* someone. A Bakhtinian dialogic approach also allows considering attitudes, values and dispositions in the analysis. The features of teacher practices when engaging in explorative activities with children are identified through a Bakhtin-inspired analysis, where conditions are seen as cultures and features are seen as positioned in time and place [43]. I suggest that that the teacher needs to maneuver between using one's own knowledge and being responsive to the child's context and initiatives. Such a pedagogical positioning can be considered a style of collaborative exploration. In a Bakhtinian sense, such a style involves the whole body as a child's utterances can be moved, as well as verbal. Awareness of children's imaginative play as well as serious exploration will be a hallmark of a teacher's engagement.

Collaborative exploration can grow through negotiations and responsiveness to contexts and relations. The collaborative explorative genre follows up on and explores the discourse of shared endeavors, but just as important is the realization that the genre goes beyond mere talking. Establishing a pedagogical genre for collaborative exploration entails the whole spectrum of bodily expressions, from the song, dance and movements to gestures and signs indicating communication. It will also involve shared attention, curiosity, manipulation or problem-solving using artifacts or materials. Alternatively, collaborative exploration could mean shared moments of togetherness, as illustrated in the narrative when the teacher and the children laid down in the moss to breathe together to explore what it means to be alive.

The recognition of the collaborative exploration of a future-oriented pedagogy could be a driver of social sustainability, as we must learn to think and act differently to reach all the goals of sustainability. Both policymakers and teachers must be loyal to nature as well as to the next generation of humans to enable deep involvement in meaning-making, imagination and finding answers, as illustrated by the example case and supported in research [51] and global policy [52]. Both the teacher in the narrative, as well as Froebel's visions for kindergarten, indicated that children should align with the cycles of nature and the ecological environment. For education to bring about a future we desire, we need to remind ourselves that we are not just "creatures of the eye". The world takes place outside of a screen and a chair, and we are full-bodied beings with the capacity to explore and experience the world through all of our senses.

Since social sustainability is often overlooked in the discourse of sustainability, the impact of this article lies in the conceptualization and the argument for collaborative explo-

ration as a signature of the ECEC teacher working towards goals of sustainability. Social sustainability in ECEC is a process for creating places and practices that promote wellbeing, meaning-making, growth and engagement for life and the living, the entanglements of the social, cultural and natural worlds. Quality education in ECEC, such as giving the best conditions for collaborative exploration, will, following the arguments in this article, be the best investment any country can do in the name of sustainability.

We need to further develop a pedagogy that is attentive to what it means to grow up in the Anthropocene epoch [4]. Collaborative exploration is, at its core, a profound binding of holistic awareness and pedagogical style, a hallmark of the early childhood profession. Therefore, additional studies should go along two main lines; The first of which could systematically ground the arguments given in this article in previous research in a broad scope. This could be in the existing educational, psychological, philosophical and creativity (Arts and innovation) literature. It could also be from an economic perspective, as it is anticipated that collaborative exploration could enhance the quality of life and education and thereby sustain societies. The second line recommends novel opportunities for pedagogical innovations and experiments on collaborative exploration in teacher education and in professional development. As teachers are keystones in educational change and improvement, it is urgent that teachers can acquire knowledge, understandings, and practices of collaborative exploration. Sustainability thinking and practice need insights from a field with a long tradition of supporting children's growth and development in ways that recognize the force, creativity and promise embedded in collaborative exploration.

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Data Availability Statement: The dataset underpinning the case developed for this article is not readily available because photos, drawings and stories cannot be shared without further concent from partcipants. Ethnographic observational notes and narrative inquiry notes are written in Norwegian. On request, translated and anonymized data can be made available for reviwers or editor.

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Early childcare as arenas of inclusion: the contribution of staff to recognising parents with refugee backgrounds as significant stakeholders

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Early childcare as arenas of inclusion: the contribution of staff to recognising parents with refugee backgrounds as significant stakeholders

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ABSTRACT

According to the Norwegian Kindergarten Act, educational staff should work in cooperation and understanding with the guardians of a child. In this article, it is argued that staff must ensure sufficient quality of interactions with all parents, provide them with satisfactory information, and facilitate parental participation, in order for children to have a safe educational environment. This study explores the ways in which early childcare staff could recognise parents with refugee backgrounds as significant stakeholders. The study has followed two early childcare institutions through several data collection methods. Eight staff members and the management has participated. Additionally, parents with refugee backgrounds have been interviewed. The analysis demonstrated that in order for staff to sufficiently recognise the parents with refugee backgrounds, the parents had to interact in the confines of the majority's discourse. Both institutions recognised the parents' backgrounds on an everyday basis; however, staff did not communicate their responsibility in this regard. Finally, parents generally appeared satisfied regarding their cooperation with staff; nevertheless, the staff had not sufficiently communicated the role and responsibility of early childcare to the parents.

KEYWORDS

Early childhood education; parental cooperation; parents with refugee background; recognition; inclusion

Introduction

This study explores how Norwegian early childcare institutions[1] can function as arenas of inclusion for parents with refugee backgrounds, and asks, 'How can staff in early childcare ensure that parents with refugee backgrounds[2] are recognised as significant stakeholders?' The parental mandate assigned to early childcare highlights the necessity of cooperation with parents to promote children's development (Directorate for Education and Training 2017, 2018, 13). Parents are significant stakeholders, implying that they must have the opportunity to express themselves, be heard and participate;

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and diversity and mutual respect should be appreciated (Norwegian Directorate for Education and Training 2017).

Previous researchers have found a lack of competence in multicultural pedagogy, multilingualism and second language learning in the Norwegian education system, where staff expressed uncertainty in their communication with children and parents of different cultural backgrounds (for research regarding early childcare, see Andersen et al. 2011; Lauritsen 2011; Gotvassli et al. 2012; Sand 2014). Therefore, the Norwegian Directorate for Education and Training (2013) started a national initiative on 'Competence for Diversity' – (CfD) for a five-year term, which required educational staff to go through a process of work-based professional development concerning multicultural and multilingual issues.

There has been little international research on migrants' and refugee families' transitions to early childcare education systems in their new countries; on parents' own perspectives regarding early childcare; and on teachers' and parents' perceptions of their relationships (De Gioia 2015; Van Laere and Vandenbroeck 2017; Van Laere, Van Houtte, and Vandenbroeck 2018). Some of the studies that have been conducted show that early childcare is often dominated by the majority's discourse and habitus (see among others Sand 2014; De Gioia 2015; Van Laere and Vandenbroeck 2017; Van Laere, Van Houtte, and Vandenbroeck 2018; Solberg 2018). It appears that parents often have to act in accordance with the expected conduct and norms of the majority and its institutions (Solberg 2018), to which they tend to be less compliant. As a result, they remain passive towards understanding their child's performance while interacting with educational staff (Sand 2014).

It has also been evident that parents from minority backgrounds have little knowledge about the daily practices of early childcare; at the same time, they show an eagerness to know more (Van Laere, Van Houtte, and Vandenbroeck 2018). The main concern of parents is the proper care and supervision of their children, as well as if their children are learning the dominant language and social-emotional skills (Andenæs 2011; De Gioia 2015; Van Laere and Vandenbroeck 2017; Vuorinen 2018; Sønsthagen 2018). The importance of a common language for interactions between staff and parents has also been illustrated (De Gioia 2013).

This study aims to highlight parents' role in early childcare and the responsibility of staff in this regard, with the understanding that parents are significant stakeholders with valuable contributions.

Power relations between staff and parents with refugee backgrounds as significant stakeholders

Early childcare staff is an example of a group, which can exert power over others – in this case over parents with refugee backgrounds. Furthermore, even though the education system is typically assigned with the role of stamping out social inequalities from society, it often functions as a reproducer of inequalities instead (see among others Abbott 1988; Bourdieu 1997; Blackledge 2001; Cummins 2009; Baquedano-López, Alexander, and Hernandez 2013). Building on Bourdieu (1997), people are born into a certain social structure, a habitus, which affect their perspectives, thoughts and actions. In a society, the dominant group's habitus and discourse permeates the education system, hence limiting the opportunity of equal education to children from minority

backgrounds (Bourdieu 1997). Cummins (2009) advocates that teachers always have a choice on how to manage interactions with others, especially with non-dominant groups – in this case parents with refugee backgrounds. The first step to challenge power relations is to critically reflect upon the assumptions concerning what good education or good practice is in diverse contexts (Cummins 2009; Vandenbroeck, Roets, and Snoeck 2009).

Another situation where the dominant group – in this case early childcare staff – can exert power over parents from non-dominant groups is in the perception of engagement. Researchers state that educational staff often perceive parents of different race, class, cultural, economic capital or migrant status as less engaged in their children's education. Additionally, these parents' can be seen as needing to learn the cultural ways of the system, rather than as active, engaged agents with valuable contributions who can advocate on behalf of their children (Baquedano-López, Alexander, and Hernandez 2013; Goodall and Montgomery 2014). Thus, following Bourdieu (1997), one can claim that the dominant group has the power to define indicators of engagement. Indicators of engagement as perceived by Norwegian early childcare staff can be (a) that parents take initiative in the interactions, by asking questions and informing staff about the child's home life, (b) ensuring that the child has the correct clothes for different weather conditions for outdoor play, and (c) bringing and picking up the child within the expected time slots. These indicators are not necessarily in line with the indicators of the parents from non-dominant groups, which may be (d) facilitating a safe home environment, (e) physical and psychological closeness, and (f) security for the child. The staffs' indicators for engagement are (1) not necessarily communicated to the parents, (2) the staff may not be aware of d, e, and f, (3) the staff may not show any interest in d, e and f, and (4) d, e, and f may not be awarded any value. Thus, the dominant groups' discourse and habitus permeates the early childcare institutions (Bourdieu 1997). Furthermore, staff in early childcare institutions may also occasionally choose their own interests over those of parents, thus suppressing and exerting power in situations where the interests of the parties collides (Ministry of Education and Research 2018).

Recognition of significant stakeholders

The study is based on the understanding of recognition, which includes notions like 'I appreciate you, I see you, and I try to understand your feelings and seek to share them' (Schibbye 2013, 39, my translation). There are varieties of temperaments that are considered appropriate and acceptable by the majority, thus reflecting cultural values (Palludan 2013, 52). People who act in accordance with the dominant temperament of any organisational body achieve legitimacy and status and are often perceived as respectable. Those who deviate can be seen as inferior, invisible and different. It is easier for childcare staff to prioritise parents that are in accordance with their own understanding of appropriate behaviour or those who follow their lead, merely through a dialogue and by facilitating a mutual exchange of views and experiences (Bergersen 2017, 41). Thus, they can also neutralise or ignore those whom they perceive to be problematic (Lipsky 1980). It is argued that the reproduction of inequalities in educational institutions is linked to social and cultural capital (Bourdieu 1997), as well as to the feeling of recognition

(Palludan 2013), thereby risking suppression of minorities (parents with refugee backgrounds) in educational institutions.

Honneth (2008) describes three levels of recognition: love, legal justice and social appreciation. Love, in professional capacity, is linked to care. It consists of mutual confirmation of each other's specific needs where individuals are dependent on each other. When bringing their children to early childcare institutions, parents have to trust that the staff will take care of their children. Legal justice refers to the individual rights of people deserving a standard of living that could morally orient them (Honneth 2008, 127). In Norway, every child has the right to attend early childcare together with children of their own age, which is one aspect of legal justice (Norwegian Directorate for Education and Training 2017). It is possible to argue that legal justice should also include a sense of belonging, where the individuals feel recognised as an important member of a community (Guibernau 2013). Although the feeling of belonging can reassure us by confirming and recognising our value as a human being in a community, it can also evoke a feeling of anxiety and stress whenever one feels 'inadequate, undervalued, misunderstood or ignored within the group' (Guibernau 2013, 34). Legal justice dictates which characteristics a person should possess, whereas social appreciation looks at the characteristics of the value system, which enables the assessment of the value of a person's attributes (Honneth 2008, 122–123). When socially appreciated, an individual experiences him or herself as a member of a social group, with certain attributes that are socially valued and acknowledged (Honneth 2008, 137).

Methods

This study takes a critical approach, with a focus on thick descriptions (Geertz 1994; Kincheloe, McLaren, and Steinberg 2011). The aim has been to understand the social world by examining the participants' interpretations of it, using in-depth information and rich data (Braun and Clarke 2013). Two early childcare institutions[3] involved in CfD were strategically chosen as the sample of the study. The institutions were located in two small towns in the western part of Norway, and the researcher visited them over a period of two years. The multiple data collection methods used were as follows:

(1) Research-directed process, wherein diaries were written by staff
(2) Individual and focus group interviews of the same staff
(3) Interviews of management
(4) Interviews of parents with refugee backgrounds
(5) Participatory observations of daily meetings between staff and parents
(6) Observations of parents' conversations and meetings

Table 1 provides an overview of the demographics of the two institutions and information on data collection methods. In institution 1, one department from each age range was followed.

Researcher-directed diaries were also seen as a part of the staffs' multicultural professional development. The purpose was to obtain a record of the experiences and reflections of the staff regarding their interaction with parents over a specified period of time (Braun and Clarke 2013). The staff made regular entries over a period of approximately

Table 1. Demographics and information on data collection methods.

	Institution 1	Institution 2
Number of children and departments	57 2 department for 1–3 year olds 2 department for 3–5 year olds	27 1 department for 1–3 years 1 department for 3–5 years
Countries of origin, children	7	8
Number of children with a refugee background	7	14
Number of employees	22	11
Number of pedagogically qualified staff	9	5
Countries of origin, employees	3	3
Number of participants (staff), diaries	4	4
Number of entries, diaries	91	33
Number of participants, staff interviews	4	4
Number of participants (staff) focus group interviews	4	4
Number of participants, management interviews	2	1
Number of parent interviews – number of parents interviewed	4–5	6–8
Background of the parents interviewed		
Ethiopia	2	3
Eritrea	3	2
Syria		1
Ghana		1
Somalia		
Number of observations entrance hall	19	8
Number of observations, parents' conversations	2	2
Number of observations, parents' meetings	2	1

one month during the fall of 2016 and the spring of 2017. The staff was provided information on how and when to fill out their diaries, and some reflective questions (Appendix 1). The participant observations for interactions between staff and parents in the entrance hall, conducted in the winter of 2016–2017, ensured gathering of the researcher's own insights into these particular interactions (Lofland et al. 2006). In order to make the situation as natural as possible, interaction with children was done during activities and a notebook was used to write down the observations, which were expanded in more detail afterwards (Lofland et al. 2006). Interviews with staff and management conducted during the spring of 2017 and 2018 (focus groups), provided insights into their interpretations of their daily interactions and relationships with parents, as well as their perceptions regarding cultural diversity (Appendices 3 and 4). The staffs' contribution to recognising parents with refugee backgrounds as significant stakeholders is the main issue addressed in this study. In order to explore how the parents perceived the concept of early childcare, their relationship with the staff, and other relevant elements, the parent interviews were conducted in spring of 2017 (Appendix 2). Five interviews required Tigrinya and Arabic translators. Observing parents' conversations (spring of 2018) and meetings (fall of 2018) obtained a holistic view on the cooperation and interactions between staff and parents. Fictional names have been used for the participants in this report.

The analysis was conducted by organising data and sorting the units (early childcare and the different participants) and materials (interviews, participants' diaries, and the different observations) (Madison 2012). Most of the codes were inductive, and were derived from reading the material; the rest were deductive, and were derived from the observation and interview guides. Thereafter, theoretical concepts available in the data material were identified, thus guiding the concepts used in the discussion. Based on the

research question, the data material was 'tied together into a descriptive statement' (Kvale and Brinkmann 2009, 207).

The study complies with the National Ethical Guidelines for Research (NESH 2016) and has been approved by the Norwegian Centre for Research Data.

Result 1: becoming significant stakeholders through sufficient Norwegian language skills and understanding of social codes

The findings suggest that in order to be recognised as significant stakeholders, the parents had to fulfil at least three criteria:

(1) Parents should possess a certain amount of Norwegian language skills.
(2) There should be a good chemistry, or a positive relationship between parents and staff, which can make up for the lack of Norwegian competence.
(3) Parents should know how to act and understand the social codes of the institution.

In both focus groups, the staff discussed the benefits that parents and children who had a good grasp of the Norwegian language had. The staff in institution 1 expressed the uncertainty they felt when parents spoke their home language in the entrance hall. One of the teachers questioned if parents should speak Norwegian with their children when entering the institution in order for the staff to be able to understand the entire communication. The diaries and observations showed that the overall communication between the participants in their daily meetings was quite short, due to language barriers, parents being in a hurry, and the insufficient chemistry between staff and parents, regardless of their background.

There were several incidents of no communication at all at both institutions. In institution 1, the entrance hall was downstairs, and it was an expected norm for parents to follow their children upstairs. However, one mother, Maria, deviated from this norm quite often. This situation became evident in the first round of diaries and observations, and remained the same when the focus group interview was conducted one and a half year later. Both the teacher and the assistant teacher described in their diaries that it was challenging to communicate and cooperate with her on several occasions due to her lack of Norwegian language skills. The teacher questioned if Maria was in a hurry or if she found it difficult to talk with the staff. After a while, the assistant teacher started to reflect more on the situation: 'Michael [her child] is just sent upstairs alone. The mother does not even come to the stairs to shout "Hi". Perhaps she does not understand/think that she should come and say good morning and follow him upstairs?' (Personal communication, assistant teacher, spring 2017). In her interview, the teacher said that she eventually did talk to Maria about the situation, and informed her that she should follow her son upstairs; however, she did not ask about her reasons for not doing so. Another mother in the same department, Shewit, has been exemplified for engaging in longer communication with staff. She was the prime initiator in asking questions about her child's day. The staff described her as 'easy to talk to' and 'she is very Norwegian, she is delightful'. There were incidents when there was no communication with Shewit as well, about which the assistant teacher stated in her diary: 'I did not see that Johanna came, so the mother just sent her into the kitchen at a different department. We waved to each

other in the window. It was perfectly fine for me, usually she comes in' (Personal communication, assistant teacher, spring 2017).

Observations from parents' conversations revealed that knowing how to act was an important factor. The language issue was not a factor, considering that translators were used when necessary. In general, the teachers directed the content of the communication, asking the parents for their comments along the way. One of them, however, did not do this until late in the conversation. Thus, Selam did not speak before the teacher asked her a direct question. Thereafter, Selam became more active. One of the teachers had a different approach than the rest. She started the conversation asking for Mohammed and Shurika's opinion, and brought an album with pictures of the child's day in early childcare. This approach engaged the parents more actively in the conversations and made their interactions better.

Comparing Maria and Shewit, it appears that Shewit, who fulfilled the three criteria, was thus recognised as a significant stakeholder and achieved legitimacy and status as those parents from the majority background (De Gioia 2013; Palludan 2013; Solberg 2018). In the parents' conversations, the teachers mainly directed the content and they did not involve the parents in a mutual dialogue (Schibbye 2009; Bergersen 2017). By highlighting the Norwegian language, habitus and conduct, and by not seeking alternative explanatory models for the parents' conduct, it can be claimed that the staff exerted power over parents for not being able to follow their norms, thus, risking suppression (Bourdieu 1997; Cummins 2009; Palludan 2013; De Gioia 2015; Van Laere and Vandenbroeck 2017; Solberg 2018; Van Laere, Van Houtte, and Vandenbroeck 2018). As Honneth (2008) explains, this is typical of a modern society wherein various groups try to increase the value of their own way of living. As the staffs' habitus is associated with the majority's discourse, it probably becomes natural for them to appreciate persons who act accordingly. Additionally, the ways in which staff talk about parents can inform the quality of the interaction (Lipsky 1980). As they described Maria with negative terms, and Shewit with positive terms, it became evident that the staff regarded these two mothers very differently. It appears that the staff perceived Maria as less engaged in her child's everyday life in early childcare, and that she needed to learn the institution's system and discourse (Baquedano-López, Alexander, and Hernandez 2013; Goodall and Montgomery 2014). Furthermore, the staff did not actively try to understand Maria's perceptions and the reasons for her actions (Bourdieu 1997).

The issue of 'good chemistry' determining the staffs' relations with parents might rest on the notion of habitus. It could be challenging to pinpoint habitus, as it forms our worldview, thoughts, and actions, which are inculcated into patterns of behaviour within a social group (Bourdieu 1997; Blackledge 2001). Educational staff is expected to recognise parents as significant stakeholders, thereby considering them to be on equal grounds, and recognising them according to the standards of love/care, legal justice, and social appreciation. Furthermore, a mutual dialogue where different views can be challenged and cultural gaps could be bridged is a necessity (Honneth 2008; Schibbye 2009, 2013; Vandenbroeck, Roets, and Snoeck 2009; Hansteen 2014; De Gioia 2015; Bergersen 2017; Van Laere, Van Houtte, and Vandenbroeck 2018).

In the parents' conversations, the teachers' perceptions about the child were the main issue of concern (Sand 2014). It seemed that the teachers considered all the parents to be part of a middle-class Norwegian-cultural parenting group, without regard for their

backgrounds. It can be argued that the teachers were not able to familiarise themselves with the parents' habitus and background, but that they took a majority-standpoint regarding how parents should act in this setting, expressing a Norwegian-cultural viewpoint of how the child should develop (Bourdieu 1997; Sand 2014). It is legitimate to question if Maria and Selam felt undervalued, inadequate and misunderstood in a setting where teachers were expected to ensure a feeling of belonging and recognition (Honneth 2008; Guibernau 2013). By merely asking the parents for their opinion and showing them pictures to illustrate and make the child's day understandable to them, one of the teachers helped them to become more active and equal partners in the conversation. This kind of conversation exemplifies the shifting of roles, and the teacher was able to listen, understand and confirm the parents' point of view, meeting them with focused attention (Schibbye 2009, 2013). The parents' views and values appeared to be important for the teacher. Thus, in this case, one can claim that the teacher recognised Mohammed and Shurika as significant stakeholders in their child's life (Honneth 2008).

Result 2: recognition of significant stakeholders' backgrounds

Both institutions showed elements of recognition of significant stakeholders' backgrounds. However, institution 2 did this most explicitly considering their CfD-project, which addressed how to highlight different religious holidays. At the parents' meeting, they showed examples of how they had highlighted a Muslim and a Hindu holiday; however, Christian holidays were not presented. Both institutions attended church services, and asked parents for permission for their children to attend. Several parents mentioned this as a sign of respect of their background. When highlighting non-Christian holidays, parents in institution 2 were not informed. In her interview, Abina, one of the mothers, expressed her negative reaction when she saw pictures of her son in a Hindu outfit, as she was a Christian. She talked to the manager regarding this, who informed her that they just learnt about a Hindu holiday and did not celebrate it. This was an acceptable argument for her. In line with the legislation, the manager expressed in her interview that highlighting different religions should be part of their pedagogical content, whereas attending church service is a special occasion as it celebrates a specific religion. Hence, parental permission was needed.

In general, staff in both institutions expressed that they did not enquire much about parents' backgrounds, at least not in the transition period. They asked about regulations regarding food, for instance, but not much more. The parents confirmed that their backgrounds were not discussed much and they did not know if early childcare should focus on different cultures and religions, nor if it did so (the parents' meeting was held one and a half years after these interviews). Most parents stated that they wanted early childcare to highlight their cultural and religious background. Samuel said, 'Yes, actually, not too much, but a little […]. For other children also, it is good to know where Sarah is coming from. For example, what Ethiopia is' (Personal communication, Samuel, April 2017). Some parents expressed that early childcare should spend time on other topics. 'No, we have to teach our children about culture. Early childcare cannot teach several children who comes from different countries, and we cannot say that they have to learn about their culture and so on. I think that would be unfair' (Personal communication, Efrah, April 2017).

It appears that the institutions recognised parents' backgrounds on an everyday basis, for example, facilitating for their religious regulations regarding food, informing them and giving them a choice regarding the attendance of a Christian church service, and showing an interest in diversity in general. On the other hand, the parents did not know that early childcare institutions are obliged to highlight diversity and even whether this was done. One would assume that if parents were recognised as significant stakeholders, they would be aware that the legislation for early childcare obliges educators to highlight diversity and variations in values and beliefs (Norwegian Directorate for Education and Training 2017), which they need to be adequately informed about and involved with (Van Laere, Van Houtte, and Vandenbroeck 2018). Researchers claim that it is important that professional staff is reflexive regarding their own practices, beliefs and value orientations, ensuring that differences are recognised and validated (Vandenbroeck, Roets, and Snoeck 2009; Hansteen 2014; De Gioia 2015; Bergersen 2017). This can bridge the gap between the cultures of parents and staff, through a mutual dialogue wherein diversity is discussed (Bergersen 2017). Additionally, through social appreciation, parents could be valuable contributors for staff regarding the highlighting of diverse religions and cultures (Honneth 2008; Schibbye 2013; Guibernau 2013; Baquedano-López, Alexander, and Hernandez 2013; Goodall and Montgomery 2014). It appears that institution 2 showed examples of their work by highlighting different religious holidays at the parents' meeting; nevertheless, one can question why Christmas, representing the majority's holiday, was not presented. Perhaps, the staff acted ignorantly in a dominant perspective, taking for granted that all parents were familiar with the majority's holiday (Bourdieu 1997; Hansteen 2014; Sand 2014).

Result 3: significant stakeholder's perspective on their cooperation with early childcare staff

When looking at significant stakeholders' perspectives on their cooperation with staff, it appeared that they were overall satisfied. They described staff as smiling, welcoming, and trying their best to make parents understand if their Norwegian language competence were insufficient. Most importantly, the parents voiced that their children enjoyed early childcare; they made friends and learned the Norwegian language and culture. The parents spent little time in the institutions and expressed that they did not need more time, as they were satisfied. However, at times, the staff took their time if necessarily. As Helen mentioned, 'They have time, but I do not have time' (Personal communication, Helen, February 2017).

Considering that parents should be recognised as significant stakeholders in early childcare, they were asked about what they knew regarding the pedagogical content. All of them received a monthly and a yearly plan from the institutions; however, most of them were not sure about its purpose. Norwegian early childcare institutions are obliged to formulate a yearly plan, which should function as a work tool, document the choices made, and a decisive parameter. Additionally, early childcare institutions are required to create a plan for shorter periods; this monthly plan should typically outline what the children do from day to day (Norwegian Directorate for Education and Training 2017). A normal day in Norwegian early childcare consists of informal play, which is not directed by staff, and activities that are more formal that are directed by staff; such as creative

activities, reading, going to the library, taking shorter trips to the surrounding areas and so on. Regarding the monthly plan, Shewit explained: 'It only states "activity". If it is Easter, Christmas and things like that, they have activities on different things, but if it is a normal day, it only mentions activity' (Personal communication, Shewit, April 2017). This means that staff did not inform the parents what they did on a normal day and what the 'activity' was. Shewit also stated that she had to ask in order to receive information about her child's day: 'I always have to ask. If you do not ask, no one gives you any information' (Personal communication, Shewit, April 2017). Through observations, it was clear that the parents in general, regardless of their background, had to ask for information about their child's day. Both institutions shared information regarding their daily routine and the frameworks they should follow at the parents' meeting.

Given the overall satisfaction expressed by parents, this may indicate that they felt sufficiently recognised by the staff. It might be that early childcare functioned as an arena of inclusion for these parents and their children, but in a different way that was expected by the researcher. Perhaps, the two institutions can be defined as arenas of integration. By being able to send their children to childcare, they were able to attend school or work themselves, hence starting their integration process into Norwegian society. Their children made friends, learnt the Norwegian language and culture, started their adaption process into the majority's habitus and got prepared for school and life in Norway. Hence, one reason for the expressed satisfaction might be that they saw that their children were safe, happy, and cared for by the staff, which is in accordance to other parents main concerns (Andenæs 2011; De Gioia 2015; Van Laere, and Vandenbroeck 2017; Vuorinen 2018; Sønsthagen 2018). Considering that the parents knew little about what the pedagogical content of early childcare should be, and that they received little information about the child's day, one wonders how they could sufficiently contribute to the early childcare community. When looking at the legislation for early childcare, it becomes clear that providing parents with this information is a significant part of the staff's responsibility. The institutions did not appear to be arenas where parents could feel a sense of belonging and social appreciation in the community or an arena where staff introduced them to Norwegian society, which would be more in accordance to how the researcher of this study would define an arena of inclusion (Honneth 2008; Schibbye 2009, 2013; Guibernau 2013).

Can recognition of significant stakeholders take different forms?

It has become evident that the significant stakeholders in this study expressed that their relationships with staff were good enough. Considering that several parents had little interaction with staff, it is reasonable to assume that they did not need more interactions or recognition from staff during their busy day, as long as their children were properly cared for. Most parents had little or no experience with early childcare institutions from their home country nor in Norway; hence, they probably had little knowledge about what they should expect. The findings suggest that this information was not sufficiently provided either. Early childcare staff are under enormous pressure from different sides (Ministry of Education and Research 2018); thus, it might be possible that they develop survival mechanisms for staying on top of things (Lipsky 1980). Instead of following up with each parent individually by providing them with relevant

information on their rights and responsibilities, it could be that the staff generalises or expects that parents with minority backgrounds have the same knowledge and understanding as parents with majority backgrounds (Lipsky 1980; Bourdieu 1997). It could also be the case that instead of discussing their differing views and having a reflexive distance to their own practices and habitus, the staff exerted their power as professionals in situations where the interests of parents and staff collided (Abbott 1988; Cummins 2009; Baquedano-López, Alexander, and Hernandez 2013; Hansteen 2014; Sand 2014).

To conclude, it might be that in a social community like early childcare, where different interests and views meet and sometimes collide, one has to look for a different understanding of what a good interaction or relationship between professionals and their clients should be. The ideal quality interaction, as expressed earlier, wherein parents and staff are viewed as equal actors in a mutual dialogue, exchanging differing views, might not be possible to achieve in all situations (Honneth 2008; Schibbye 2009; 2013; Hansteen 2014; Bergersen 2017). One might question what a good quality relationship is, which forms it can take and if there can be different ways to achieve it. Perhaps, the professional educator is someone who is aware of possible challenges when meeting different parents with different demands and views; who is aware of the power he or she holds; and who critically reflects about his or her presumptions and practice, thereby realising that in a culturally diverse community, actors have differing views and habitus. In order to recognise all parents as significant stakeholders, regardless of background, staff will have to use professional consideration and understand which interaction strategy will be suitable in different situations, while having the parental mandate in mind (Lipsky 1980; Abbott 1988; Bourdieu 1997; Cummins 2009; Vandenbroeck, Roets, and Snoeck 2009; De Gioia 2015). Eventually, this could contribute to ensuring a safe educational environment for the children.

Implications for policy and practice

The results of this study cannot be generalised; however, the results do have transferrable value. The study found that (1) early childcare staff needs to be aware of their power position as the dominant group and the implications for parents from non-dominant groups, (2) the staff have to take into consideration other types of caring parenting styles than those defined by the dominant group, and (3) when meeting someone strikingly different, staff must have a reflexive distance to their own practices, beliefs, and value orientations (Hansteen 2014, 9). This requires a certain amount of courage (Schibbye 2009); however, it is a necessary process in order to build bridges between different cultures (Bergersen 2017). In order to make the critical reflection process possible, amongst other steps, policymakers need to ensure sufficient and beneficial local professional development processes for staff in accordance with the changes required in society. Additionally, teachers of early childhood education need to be responsible, regarding both the students' cultural sensitivity and self-reflexivity so that they are ready to handle the diverse and ever-changing society that involves early childcare. Finally, yet importantly, researchers have to continue studying the everyday life routine of children, parents and staff in early childcare, and how interactions and understanding between the majority and minority actors can be improved.

Notes

1. Early childcare institutions in Norway are known as kindergartens, which are for children aged 0–5 years. It features learning through play and indoor and outdoor activities, which focus on the child's development and social competence (The Norwegian Government 2014).
2. Parents with refugee backgrounds are mainly referred to as 'parents' in this article.
3. The county governor in each district selected the institutions that should participate in the initiative and the university staff functioned as supervisors for the participating units.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendices

Appendix 1: Questions for research-directed diaries

Time of event (date and time): What happened? (Describe the event) Who was involved? (Name, background (country of origin, optionally; religion), approximately how long been in Norway, Norwegian language level, how long had children in the institution, etc.).

What reflections do you make around the meeting afterwards? (For instance: How did you feel after the interaction? Who took initiative? Who lead the conversation? On whose terms? Is there anything you think you could have done differently? Is there anything you want to improve for later interactions? Etc.).

Appendix 2: Extracts of relevant interview questions, parents

- Background information
- Can you tell me about your experiences when your child started kindergarten? (Previous knowledge with kindergartens? Knowledge from home country?)
- Can you tell me about a typical day in kindergarten, when you bring and pick-up your child? How do you experience your interactions with staff? Is there anything that makes you uncertain?
- How was the start-up period?
- Can you say something about the content in the first parent conversation you had with the kindergarten? What is the content in these conversations? What are your experiences?
- How would you describe your relations with staff?
- Can you say something about what you know the children should learn in kindergarten?
- What is the most important for you regarding kindergarten?
- How do you perceive the content of the kindergarten? What kind of information do you get?
- Can you say something about to what extent you feel that yours' and your child's background is emphasised in kindergarten? Have the staff talked to you about this?

Appendix 3: Extracts of relevant interview questions, staff

- Background information

- What do you think is important to emphasise regarding inclusion of parents with refugee backgrounds in the kindergarten?
- How do you feel that your competence is in interactions with parents with refugee backgrounds? Strengths and weaknesses.
- What do you emphasise when meeting parents with refugee background? Formal and informal events.
- Can you describe a typical morning/afternoon when parents bring and pick-up their children? Do you feel that you have enough time in these meetings?
- Do you think there is any difference in how parents with different backgrounds are met?

Appendix 4: Extract of relevant interview question, focus group interviews

- What do you think is the most important regarding the kindergarten's work with minority families?
- How are you working with diversity and inclusion now?
- How are you working with cooperation with minority parents now? Has anything changed since you started Competence for Diversity?
- How is the entrance hall situation functioning now? Do you feel that anything has changed? Why, why not?

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Building a Sustainable Future Through International ECE Partnership Programmes

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Abstract

Purpose: Taking a particular example of an international partnership programme, this article aims to discuss kindergartens' participation in international partnership programmes as compelling vehicles for promoting *early childhood education for sustainability* (ECEfS). The partnership programme included Western Norway University of Applied Sciences, Beijing Normal University, East China Normal University, and kindergartens in Norway and China. Researchers, postgraduate students, kindergarten principals, and teachers participated in the programme, their key concern being to promote competencies for sustainability and agents for change.

Design/Approach/Methods: The article is based upon research with a phenomenological approach to Chinese and Norwegian kindergarten teachers' and principals' experiences of participating in an international partnership programme. The data for this article consisted of reflective notes from the teachers and principals and recordings of teachers' and principals' reflections in a joint seminar in the kindergarten network.

Findings: This article argues that ethical normative, dialogical, and anticipatory approaches are pivotal within international ECEfS partnership programmes.

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Originality/Value: The article has the potential to address international partnership programmes, involving different stakeholders, as vital in promoting ECEfS. It also urges international partnership programmes to promote *glocality* in ECEfS (i.e., local situatedness with global awareness).

Keywords

Agents for change, cultural sustainability, partnership programme, sustainability competencies

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Introduction

> Cultural understanding through dialogues leads to a multiplicity of voices and can be mutually enriching, because "it educates each side about itself and about the other, and it not only discovers, but activates potentials."
>
> —Morson and Emerson (1990, p. 55)

In this article, we argue that establishing international partnership programmes is pivotal for *early childhood education for sustainability* (ECEfS). The United Nations General Assembly announced 17 *sustainable development goals* (SDGs) in 2015 as part of Resolution 70/1 of the 2030 Agenda. SDG 17 (United Nations [UN], 2015), *Developing International Partnerships*, is particularly important for strengthening the means of implementing and revitalizing global partnerships for sustainable development. Enhancing international cooperation, rather than competition, and developing multi-stakeholder partnerships for sharing knowledge and expertise, is vital to the overall success of the SDG according to the 2030 Agenda (UN, 2015).

Education for sustainable development (ESD) is explicitly recognized as part of SDG 4, Quality Education (target 4.7) (UN, 2015). ESD promotes crosscutting sustainability competencies in learners, enabling individuals to contribute to sustainable development through societal, economic, and political change, as well as by transforming behavior. The combination of ESD with the development of international partnerships emphasizes the importance of expanding individual learning into transformative learning in communities of practice (CoPs). Building an international network for ECEfS involves identifying global common ground and common challenges but acting locally.

United Nations Educational, Scientific and Cultural Organization (UNESCO, 2016) recognized that early childhood education (ECE) plays a major role in preparing present and future citizens and in aiding societies to make the necessary transitions toward sustainability. The UNESCO report (2016) identified four foci for moving forward: deepening the research base, approaching learning in community-based and holistic ways, educating families and children, and

implementing training for early childhood educators. This article promotes the necessity of community learning as well as learning in CoPs.

Sterling (2011) addressed the question of what competencies are necessary, at different levels within educational contexts, to promote multidimensional understandings of sustainability. In the education field, ongoing professional learning is pivotal in influencing how childhood educators think about and enact EfS. However, the role of international partnerships in ECEfS has been somewhat neglected and little attention has been paid in research to how teachers' key ECEfS competencies can be developed by building international partnership programmes.

This article aims to discuss kindergarten principals' and teachers' participation in international partnership programmes as compelling vehicles for promoting ECEfS. The main research question asked is how the design of an international partnership programme can promote kindergarten teachers' ECEfS competencies.

In most countries around the world, sustainability commonly relates to environmental concerns (Pramling Samuelsson & Park, 2017). There is a need to move from a focus on nature and the environment to a more holistic perspective, in which the dimensions of social cultural sustainability and economic sustainability are given space. The importance of considering local factors as a point of departure for developing strategies for sustainable development is embedded in the first official documents and definitions regarding the concept. Ideas of local action and global impact are founding principles of the UN global action plan's Agenda 21.

Children's immediate, local contexts have undergone rapid change in both China and Norway. This has had an impact on education for cultural sustainability within ECE. The increasing migration from rural areas to large cities in China has resulted in multiculturalism, but also in children's and families' lack of connectedness to their local roots (Halskov Hansen et al., 2018). The rapid growth of cities and the consequent demographic changes have resulted in children and their families having limited familiarity with their new locality. In Norway, this migration from the rural areas to the cities has also been pronounced. Oslo is now the fastest growing major city in Europe (worldpopulation.com), and its growth is attributed to high birth rates, intranational migration, and international immigration of workers and refugees. Consequently, the society has become more heterogeneous. These changes call for ECE workers to have competencies in cultural sustainability focused on glocality (i.e., local situatedness and global awareness) (Birkeland, 2016; Ødegaard, 2016). This article reassesses the journey of such an international partnership programme so far and proposes avenues for further exploration.

Internationalization in ECE

A long tradition in the ECE field has paid attention to internationalization (Wollons, 2000). Practitioners, teacher educators, and students have been influenced by research concerning ECE

across national borders in the initial phases of kindergarten (Wollons, 2000), and China and Norway are no exceptions (Korsvold, 2013; Pan, 2018).

Purposes of internationalization in ECE

Historically, the field of internationalization has been complex and multifaceted, involving different purposes, methods, and theories (Crossley & Watson, 2003; Kazamias, 2009). The research interests have differed between investigating cultural loans; describing best practices; understanding the interrelatedness between education, society, and culture; studying intercultural cooperation; and developing global solidarity as world citizens (Kazamias, 2009; Kemp, 2015; Nussbaum, 1997).

As early as 1900, Sadler warned against the blindfolded transfer of educational policies or practices from one context to another:

> We cannot wander in pleasure among the educational systems of the world, like a child strolling through a garden, and pick off a flower from one bush and some leaves from another, and then expect that if we stick what we have gathered into the soil at home, we shall have a living plant. (Higginson, 1979, p. 49)

Even though Sadler's perspectives have been given emphasis and consideration, transfer is still a prevalent issue and tempting to engage in when establishing partnership programmes.

Kelly (2014) stated that internationalization in education allows one to learn from the experience of others; by making the strange familiar, we make the familiar strange (Tobin et al., 1989, 2009). Following Kelly's example, comparison is a method for illuminating the dialectics between the global and the local; so, rather than having cultural loans as its objective, internationalization in ECE needs to acknowledge that "the kindergarten is a diasporic institution, global in its identification, and . . . local in its execution" (Wollons, 2000, p. 2). Local practices, as the point of departure for international collaboration, provide opportunities for identifying common ground and common challenges within ECEfS.

It is also helpful to establish ethical partnerships that are sustainable: "it is not the goal or logic of 'helping' that enables ethical partnerships to be developed. Rather, a reciprocal recognition of the partner, that is also the basis for justice, must be the foundation for an ethical relationship" (Schultz, 2013, p. 84). This ethical space is created when people with different worldviews, positions, or even organizational or personal goals, are in conflict, but those people seek to engage dialogically despite their differences. If partnerships are to be ethically based, they need to be nurtured in this kind of dialogic space (Schultz, 2013, p.84). Such partnership programmes are important countermeasures to the simplistic global transfer of educational politics and pedagogy.

Strategic international partnerships are a "hot topic" within higher education institutions globally. Collectively, there has been a movement away from signing as many memorandums of

understanding as possible toward emphasizing strategic partnerships involving careful planning, deliberate action, attention to depth, and sustainability (Sommerville & Williams, 2015).

A particular international ECE partnership programme

In 2013, the Norwegian Government, via the Centre for International Cooperation in Education (SIU), launched a strategy for strengthening cooperation in higher education and research with Brazil, Russia, India, China, South Africa, and Japan (the BRICSJ countries) under the UTFORSK Partnership Programme[1] called Panorama. The overall aim of the UTFORSK Programme is to improve the quality of higher education by enhancing long-term cooperation in higher education in all academic fields within the prioritized countries. The programme should lead to the establishment and strengthening of partnerships between higher education institutions in Norway and the partner countries through (1) the development and implementation of joint educational activities; (2) increased mobility of students between Norway and the partner countries, including mobility in connection with internships/work placements; (3) increased integration of higher education and research in the collaboration between Norway and the partner countries; and (4) increased involvement of nonacademic partners (industry, companies, organizations, etc.) in relevant project activities (Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education [DIKU]). The UTFORSK Programme is funded by the Ministry of Education and Research and is administered by SIU.

The particular UTFORSK Partnership Programme for ECE and research, used as an example in this article, includes Western Norway University of Applied Sciences (HVL), Beijing Normal University, East China Normal University, and six kindergartens in Norway and China.[2] The participants in the programme are teacher educators/researchers, kindergarten principals, teachers, and postgraduate students. The application stated that: "The proposed project will meet the need to broaden researchers', students', and practitioners' views and understanding of culture and education, to further the internationalization in their career development and improve the quality of their research and practice." The partnership programme was initiated in 2015 and has been continuously developed since that time. The programme's main activities are illustrated in Figure 1.

The partnership programme aims to combine collaboration within kindergarten teacher education, ECE research, and kindergarten networking. Initially, the partnership had the clear intention of cross-cultural collaboration and mutual learning and was intended to inspire curriculum development, best practices, and teachers' professional development (Birkeland, 2016; Birkeland & Ødemotland, 2018). Gradually, the focus of the partnership programme has moved toward strengthening the capacity for ECEfS through participation and dialogue in research and educational activities (Li et al., in press). Acknowledging the fact that all the dimensions of ECEfS are

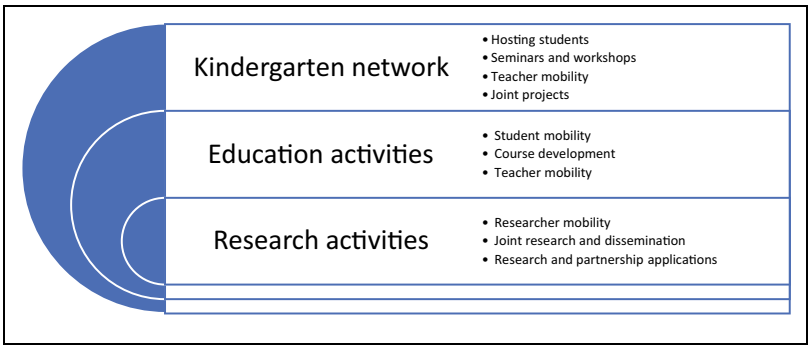


Figure 1. Content of the ECE international partnership programme (UTFORSK). ECE: early childhood education.

vital and that some of the dimensions have received less attention than other dimensions, the partnership programme has so far focused on cultural sustainability.

ECEfS as transformative learning

The UN stated cognitive, socio-emotional, and behavioral learning as the objectives for SDG 17, Partnership for Sustainability. Crucial learning objectives are connected to understanding, raising awareness of, and working with others to promote global multi-stakeholder partnerships for sustainable development. Other learning objectives are connected to becoming agents of change by assuming roles as active, critical, and global citizens and contributing to facilitating and implementing local, national, and global partnerships for sustainable development. In line with the learning objectives, scholars have identified certain necessary competencies within education for sustainability, such as systems thinking, anticipatory, normative, strategic, collaborative, critical thinking, and self-awareness competencies (Rieckmann, 2018).

Developing sustainability competencies through a partnership programme, as stated above, requires a variety of approaches to learning. Mezirow's theory of transformative learning (1991, 1996, 2000) corresponds well with the competencies required for ECEfS. However, the process of learning within ECEfS needs to expand individual transformative learning processes into CoP learning. Thoughtful learning processes occurring in such an environment do not remain private; instead, the participants' own mental efforts, and their continuous struggles to learn, understand, and reach beyond given information, become visible throughout the network.

Mezirow (1991, 1996) defined transformative learning as the learning process that transforms a learner's frame of reference by enabling the learner to critically reflect on taken-for-granted assumptions that shape their perceptions, interpretations, beliefs, and perspectives. According to Mezirow, the transformative learning approach transforms a learner's prevailing frame of

reference by harnessing the learner's capacity to think hypothetically through a disorienting dilemma. This is often painful and perplexing for a person, because the imbalance challenges core beliefs and assumptions about the person and the world (Mezirow, 1991). Such dilemmas are the result of an external event that causes a sense of internal imbalance. As Mezirow (1991) asserted, feelings of disorientation are excellent opportunities for reflecting on a person's lived experiences and unquestioned assimilated values and beliefs and, thus, become opportunities for transformative learning to take place. Such challenging scenarios often happen through critical reflection in the context of dialogue with other people (Howie & Bagnall, 2013).

A frame of reference has two dimensions: a habit of mind and a point of view. Habits of mind are more enduring than points of view, since the latter continually change as individuals modify their assumptions in response to feedback from others or to external sources of information. A frame of reference is a complex structure of assumptions, expectations, values, and beliefs that filter one's sensory experiences and shape emergent meanings (Mezirow, 1996). Habits of mind are "broad, abstract, orienting, habitual ways of thinking, feeling, and acting that are influenced by assumptions that constitute a set of codes" (Mezirow, 2000, pp. 5–6) regarding cultural, social, educational, economic, political, or psychological events. They are expressed as points of view, which are meaning-schemes made up of the beliefs, value judgment, attitudes, and feelings that are used to interpret sensory experiences (Mezirow, 2000, p. 6).

Reflexivity appears in intercultural education as a strategy for developing intercultural competence and as a goal of intercultural training (Blasco, 2012, p. 476). However, this notion of self-contemplation and self-reflection that give participants freedom as thinking beings needs to be challenged in two ways. Blasco (2012) asked whether reflection is necessarily beneficial or sufficient in intercultural education. Jokikokko (2016) drew on a similar question, arguing for the reframing of teachers' intercultural learning as an emotional process. She argued that emotions are a vital part of any change and, thus, play a significant role in teachers' intercultural learning processes. The importance of emotions in intercultural learning has been recognized, but the topic has not been theorized or studied extensively. Emotionality is regarded as an effect, rather than as a phenomenon that may have a constitutive role in what intercultural learning may imply for adult learners (Jokikokko, 2016; Zembylas, 2003). Secondly, transformative learning in an international partnerships programme needs to be approached as a dialogical CoP learning and less as an individual learning process.

Methodological approach

This article is based upon empirical evidence from a study of one particular international ECEfS partnership programme (UTFORSK), which involves researchers, students, and kindergarten teachers, and the focus of this article is on the China–Norway kindergarten network. The network

includes four Chinese kindergartens and two Norwegian kindergartens, situated in the cities of Beijing, Shanghai, and Bergen. They were invited into the partnership programme due to their interest in international collaboration between Chinese and Norwegian kindergartens. Apart from this project, the participant kindergartens had some international experience but limited experience of being in a partnership.

Data

The empirical material for the study comprised 15 open reflection notes written after host students' fieldwork and teacher mobility and a recorded discussion among Norwegian and Chinese teachers after a joint seminar about cultural sustainability.

Analyses

The analyses took as their point of departure the qualitatively different levels of interpretation suggested by Kvale and Brinkmann (2015), such as the levels of self-understanding, critical common sense, and theoretical knowledge. The first level of analysis involves condensing the meaning of the applications and reflection notes (Kvale & Brinkmann, 2015, p. 241). At the second (critical common sense) level, the researcher goes beyond the condensation of meaning and interprets the texts in a general commonsense way by examining the content (Kvale & Brinkmann, 2015, p. 241). At the theoretical interpretation level, the researcher applies transformative learning and ECEfS competencies as a theoretical framework for interpreting the meaning and identifying patterns in the material (Kvale & Brinkmann, 2015, p. 2015).

Positions as researchers

As researchers, the authors had dual roles and positions. We were positioned both as project leaders/coordinators and as researchers; hence, we were both insiders as project members and outsiders as researchers bringing potential insights to nuanced cultural signifiers. Our familiarity may have led to the recycling of dominant assumptions; however, outsiders may contribute fresh perspectives or may impose their own worldviews uncritically (Crossley & Vulliamy, 2006). Conducting collaborative research and having international partnerships with both insiders and outsiders can enable research to be more sensitive to the local social constructions of reality (Crossley, 2002) by co-participants, such as students, teachers, and principals (Kelly, 2014).

Simultaneously, we were insiders in different countries living, respectively, in China and Norway. As researchers, we had developed from being insiders regarding ECE in our home country to becoming experienced and knowledgeable about the host countries. In this respect, our position became more that of an "in-betweener," occupying a "third base," (Milligan, 2016) as we distanced ourselves from our home education and drew closer to that of the host country (Birkeland, 2013).

Ethics

This research interest had an impact on the establishment of an ethical space in the project in general and the research approach in particular (Schultz, 2013). This ethical space is created when people with different worldviews, positions, or even organizational or personal goals, are in conflict, but those people seek to engage dialogically despite their differences. If partnerships are to be ethically based, they need to be nurtured in this kind of dialogic space (Schultz, 2013).

The information regarding the kindergartens involved in the UTFORSK project is public information, so the ideal of anonymity for the kindergartens was difficult to fulfil; however, detailed information about the participant teachers was not publicized.

Kindergarten principals' and teachers' reflections on participating in the programme

The data comprise 15 reflective notes written after host students' fieldwork and teacher mobility, and a recorded discussion among Norwegian and Chinese teachers after a joint seminar about cultural sustainability. The study focused on the aims and content of the kindergarten network and did not include the aims and content of research and educational activities at the universities, such as student mobility, although all these activities were intertwined and created synergistic effects in the programme.

Activities involving kindergarten teachers and principals

The activities as listed in Table 1 involved kindergarten teachers and principals and were background for their reflections.

Teacher reflections

The following pieces of text are excerpts from the teachers' reflective notes and joint reflections in a seminar.

Taking the perspective of "the other". In particular, the Norwegian teachers reflected upon the role of being a host for visiting delegations and students doing fieldwork in the kindergarten. One of the teachers wrote:

> Earlier, before we participated in this programme, when we were receiving foreign guests, I thought the best thing for them would be to just observe natural everyday life in the kindergarten. I did not prepare much and I did not reflect upon what they needed to know as foreign guests. Now I pay attention to these kinds of questions. I ask myself "What do the guests need to know in order to understand our practices?"

This teacher had clearly changed her approach to take in the perspective of the foreigners. Another Norwegian teacher reflected on what being a host was like:

Table 1. The activities involving kindergarten teachers in the partnership programme.

Activities	Tasks
Being hosts	The kindergartens hosted visiting delegations, including postgraduate students, kindergarten teachers, principals, researchers, and government officials.
Supervising students	The kindergarten teachers supervised international postgraduate students doing 1 month of fieldwork.
Being informants	The kindergarten teachers participated as informants in the research projects conducted by the postgraduate students.
Participating in seminars	The kindergarten teachers participated in seminars together with postgraduate students and researchers: (1) seminars in which the students presented their research plans for the 1 month of fieldwork and (2) seminars in which the students presented their findings from the fieldwork.
Visiting kindergartens	Each year, there was a partnership programme meeting in both China and Norway. The kindergarten teachers participated in the project meetings and visited the home kindergartens in the network.
Developing joint projects in the kindergarten network	The kindergarten network developed joint projects focusing on (1) dramatic play and (2) cultural sustainability. They documented their work and presented it at joint seminars.
Disseminating	The kindergarten teachers participated in joint publications and dissemination at conferences such as Organisation Mondiale pour l'Education Prescolaire (OMEP) and Comparative and International Education Society (CIES).

> Visiting Chinese kindergartens really impressed me. We could find signs everywhere showing that we were expected. They had published information in the hallway about the visit and about Norway. They gave a PowerPoint presentation about their kindergarten and the children were engaged in welcoming us with small token gifts. The children served us snacks and something to drink in the meeting room. I really felt welcomed to the kindergarten.

The Chinese teachers did not reflect much upon the Norwegian kindergartens as hosts, but one teacher said: "I really appreciated the informal and simple way of welcoming guests. It was relaxing. I think we need to be more relaxed in the Chinese kindergartens." All of these excerpts illustrate the change of thinking about being a host, toward taking the perspective of the guest: What does an international guest need and how can we provide for this in our kindergarten? Such questions were evident among the teachers.

To challenge taken-for-granted assumptions of educational practices. The kindergarten teachers helped the postgraduate students to conduct their fieldwork in the kindergarten. The teachers also contributed to the students' projects by being interviewed and observed and, finally, by contributing to the seminars in which the students presented their work. In their reflective notes, all the teachers highlighted how involvement in student projects challenged their ways of thinking:

> I was so surprised by all the questions the Chinese students asked. I really understood that we take a lot of our work for granted and that we do things without thinking about *why* we do them. I am not aware of what I am doing all the time; however, the students' questions woke me up.

Some teachers also emphasized that the student projects evoked emotions of disappointment and anger. One of the Norwegian teachers wrote: "One of the students asked me why the teachers seemed to be so passive and disengaged from the children's activities. I was so angry and I felt she did not understand our educational practice."

A Chinese teacher wrote: "The Norwegian students needed so many explanations and I didn't have answers for all their questions." Another Chinese teacher said:

> I have become more confident about what I am doing since I have read the students' observations. I have a lot of skills and knowledge that I can share. I do not feel ashamed of the Chinese way of doing things.

A Norwegian teacher wrote: "When the students interviewed me, I really understood that we use different words and that the meanings of words are different. 'Play,' for instance; we really do not talk about the same thing." Another Chinese teacher was puzzled by the Norwegian students' approach to the children: "They do not just sit in the corner observing, taking notes or photos. Quite the contrary! They approach the children and invite them to communicate." Obviously, the teachers were "woken up" by the puzzlement and disturbance caused by the students' questions and reflections.

Disturbing preconceptions. All the teachers expressed surprise and confusion when they visited the foreign kindergartens. Most of the teachers reflected upon their preconceptions about each other; as one of the Chinese teachers stated:

> I thought I would see very rich kindergartens with lots of resources when I came to Norway. I have seen with my own eyes that the kindergartens are in a way simple and use natural resources. Why? I have been thinking a lot about what rich resources in kindergartens really mean.

One of the Norwegian teachers also expressed this disturbance of preconceptions after listening to the Chinese kindergarten teachers' presentations of their project on cultural sustainability:

> I did not know that the Chinese kindergarten teachers let the children have such a strong voice and that they were listened to in this way. I was impressed by how the children were invited to influence their local community project.

Clearly, this teacher had some preconceptions about how Chinese kindergarten teachers approach children as participative citizens and these preconceptions were challenged.

Self-awareness. The kindergarten teachers initiated seminars to present their joint project work to the kindergarten network. They wanted to have their own agenda, with space for their own work on specific topics. The comments after the presentations reflected disturbances of their preconceptions in some ways; for example, some of the teachers changed their preconceptions about the intentions of the project:

> I thought I was going to Norway to learn from them and bring back new ways of teaching. Now I think differently about this. Of course, there are some ideas I want to take with me home, but the most important is that I feel so much more confident about our local approach; not the general Chinese approach, but the local Chinese approach we have.

For this teacher, the main point about participation was no longer educational "borrowing," but a way to gain confidence in the local educational approach. For this Chinese teacher, the main purpose of the partnership programme had changed from a "transferring best practices" project to a "confidence building" project. In addition, the concept of cultural identity was nuanced. In contrast to the societal expectation of having ECE with an emphasis on Chinese culture, this teacher took a stance that emphasized local community identity more than national identity.

One of the Chinese teachers said: "Through these presentations, I really understand how important it is to know the neighbourhood of my kindergarten and to know the history of this neighbourhood." Another Chinese teacher said:

> We used to be competitive, giving our best performance and showing our best practices. After these presentations, I have become more relaxed and I am concerned with having less of the "show and tell" attitude and more of the "share and do together."

> One of the Norwegian teachers was puzzled by the concept of sustainability. She said: I did not think that sustainability had anything to do with culture and community practices. When I talk about sustainability, I immediately think about the environment. I think about how important it is for children to love nature in order to protect it. Now I see the importance of loving the neighbourhood.

Agents of change. The material does not include many reflections about changes in actions. However, one of the Chinese teachers addressed this topic explicitly in her reflections by saying:

> After my visit to Norway, I can see that we do many unnecessary tasks in our kindergarten—tasks that provide teachers with hard workloads. I am also designated to unnecessary control. When I return, I want to make the teachers more confident and independent of me.

This teacher obviously has developed her self-awareness and has become more critical to established practices. However, she enhances this change of thinking to taking a normative stance for providing action as well.

Establishing ethical space. The discussions that followed the presentations in the seminar politely embraced the presented project with comments like: "This is interesting: how did the children react to the project?" or "How did the parents become involved in the project?" The teachers did not challenge the presented projects, nor did the discussion reveal any deeper reflections about how the teachers conceptualized cultural sustainability. They gave examples of how they interpreted the task about cultural sustainability but did not really discuss the concept. The seminars did not invite reflections on creating agents for change, neither did the tasks in the seminars invite to imagination and engagement of multiple futures and future scenarios.

When we tried to summarize the teachers' reflections, we saw a pattern of disturbance, surprise, confusion, and puzzlement regarding preconceptions. The preconceptions related to general conceptions of quality in ECE, preconceptions about the purposes of participation in partnership programmes, and preconceptions about cultural sustainability. These reflections were also in line with the aims of the partnership programme, which were to broaden the researchers', students', and practitioners' views about, and understanding of, culture and education; further the internationalization in their career development; and improve the quality of their research and practice. There was limited reflection in the material pointing to the necessity of developing agents for change and anticipatory competencies for future scenarios.

Partnership programmes and transformative learning

Participating in an international partnership programme does not automatically result in transformative learning and ECEfS competencies. However, the reflections of the kindergarten teachers indicated that the participation confronted them with disorienting dilemmas that challenged their core beliefs and assumptions about themselves and the world (Mezirow, 1991, 1996, 2000). Assumptions of themselves and "the other," including assumptions about sustainability, were challenged in their dialogues with students, in visiting host kindergartens, and in taking part in joint projects. The teachers demonstrated that this disturbance of their core beliefs forced them to verbalize the institutional practices that were otherwise tacit and taken for granted. Our findings also indicated that these reflections did not lead to an uncritical embracement of the foreigners' way of conducting ECE. On the contrary, the teachers seemed more confident and empowered in

their own way of conducting ECE. In spite of this confidence, or maybe because of it, the teachers verbalized nuances by reflecting upon weaknesses as well as strengths. With regard to the sustainability competencies, the teachers demonstrated both critical thinking and self-awareness competencies (Sterling, 2011). Their reflections illustrated that partnership programmes can provoke the "third space" and, as Bakhtin (1981) said, being on the border makes you see something else.

However, transformative learning for ECEfS includes normative as well as strategic and anticipatory competencies. ECEfS involves a normative stance toward the SDGs; therefore, a dialogic understanding of "the other" and of oneself is merely a starting point in an ECEfS partnership programme. Taking a normative stance also requires confrontation and negotiation about the content of ECEfS and how to achieve the SDGs. Establishing an ethical space (Schultz, 2013) for such confrontations is crucial; otherwise, the discussion and confrontation may become a competition between best practices, rather than an endeavor for knowledge construction. The teachers showed limited conceptualization of ECEfS, in their surprise about other aspects of sustainability than the environmental. The teachers' surprise supported the need for greater focus on all the ECEfS dimensions (Pramling Samuelsson & Park, 2017). In order to develop strategic competence, it is necessary to continuously clarify and conceptualize the sustainability concept.

In Mezirow's conceptualization of transformative learning (1991), the anticipatory competency was given no space. However, anticipatory competence is vital for ECEfS. The design of the programme and the activities did not particularly invite the creation of visions for the future or provoke consideration of future scenarios—possible, probable, or desirable. None of the participants reflected upon these topics. As project leaders, we did not ask for these perspectives and did not challenge them, but we did challenge a certain competitiveness in describing best practices of cultural sustainability: "show and tell," rather than "share and do." The necessity of openness to different future scenarios was not encouraged, and thus, cultural sustainability mostly emphasized past and present scenarios rather than future scenarios.

Conclusion and implications

Our findings illustrated that an international partnership programme within ECE is complex and involves a variety of conflicting aims. The call of the UTFORSK Partnership Programme focused on increasing quality in higher education institutions. An important premise for the allocation of money was collaboration with top universities in China, concerning the dominant discourse about the role of internationalization within higher education in perpetuating competition. This conflicts with the 2030 Agenda, emphasizing international cooperation over competition, and the development of multi-stakeholder partnerships for sharing knowledge and expertise as pivotal to the overall success of the SDGs (UN, 2015).

In this article, kindergarten teachers' participation in international partnership programmes as vehicles for promoting ECEfS have been illuminated. In particular, we have highlighted how the design of an international partnership programme can promote ECEfS competencies. Our findings have implications for the design and development of international ECEfS partnership programmes, beyond this particular programme. Firstly, involving different stakeholders, such as researchers, students, kindergarten principals, and teachers, opens up a vital space for dialogue and critical inquiry; including a variety of activities in research, higher education, and ECE practices contributes to different aspects of ECEfS. Furthermore, partnership programmes need a solid grounding in mutual inquiry, meaning that all the parties involved should be targets for inquiry. This establishment of a dialogical ethical space is vital for enabling the participants to open up regarding their diverse perspectives on practices; however, the design of specific and targeted activities can move this ethical inquiry forward to include inquiry concerning the common values and potential of ECEfS.

Finally, this inquiry also urges international partnership programmes to promote "glocality" in ECEfS (i.e., local situatedness within strengthened global awareness). Place-oriented pedagogies are needed so that the education of citizens might have a direct bearing on the well-being of the social and ecological places people actually inhabit. The first step in this approach has been carried out and we propose avenues for further exploration.

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Notes

1. UTFORSK is an acronym formed from the amalgamation of "utdanning" (education) and "forskning" (research) in Norwegian.
2. (1) UTF-2014/10032—a 2-year project from 2015 to 2016 named: *Fieldwork and Research Approaches in International Early Childhood Education* and (2) UTF-2016-long-term/10001—a 4-year project from 2017 to 2020 named *Dual Master in Early Childhood Education*.

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sustainability

MDPI

Review

What about the Migrant Children? The State-Of-The-Art in Research Claiming Social Sustainability

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Abstract: This study aimed to investigate research articles that relate to education for sustainability, primarily in early childhood, in order to describe to what extent a holistic perspective on education for sustainability has been applied, and how the social dimension is conceptualized. The review comprised research articles in Nordic Journals of Education, International Journals of Early Childhood Education, and International Journals of Education/Environmental/Sustainability education. The findings disclosed that researchers within the field of education for sustainability acknowledged, to a large extent, environmental, economic, and social aspects, and thus applied a holistic perspective. This review shows, however, that even if the social dimension were conceptualized as strongly related to topics such as social justice, citizenship, and the building of stable societies, few articles have investigated diversity, multicultural perspectives, or migrant children's situations in the context of early childhood education for sustainability. This review discloses that the concept of belonging is rarely used in connection to migrants and refugees in research on early childhood education for sustainability. A further argument encourages the inclusion of these aspects in further research which claims social sustainability.

Keywords: education for social sustainability; early childhood; migrant children; belonging

1. Introduction

As a demographic change is seen in many parts of the world, the issue of migrant children's experiences of belonging is a topic that needs to be addressed on the early childhood education agenda for sustainability. It is an urgent matter that the world community respect the United Nations Universal Declaration of Human Rights [1], as well as the Convention on the Rights of the Child [2]. Societies have the duty to protect and restore every child's right to live and to develop to his/her full potential. To create optimal conditions for migrant children, we believe that a holistic education is of the utmost importance in the most formative years, as also stated by the World Organization of Early Childhood Education, OMEP 2016 [3].

In this article, we understand education for sustainability as a process of social and cultural learning and, fundamentally, a value-based approach for developing new understandings and practices that give better conditions for *all children*. By sustaining equity, future generations' ability to live together in diverse societies will be nourished.

Crucial to our understanding is that we understand young children in light of their local cultural-historical heritage as well as understand that their childhood is happening now, as we speak.

Future global and local work with sustainability will need to boost early childhood education for the simple reason that children spend their most formative years there. In early childhood educational institutions, families have tight bonds with their children and, therefore, most of them follow children's institutional lives with emotional interest. Research is evident when it comes to the crucial impact that a community has for children. It is indicated that being a part of a group of children in a new setting is of a great importance for children with an historical background of migration; however, children with an immigrant background can encounter challenges in experiencing belonging and positioning themselves within the kindergarten community [4,5].

As outlined by Siraj-Blatchford [6], social sustainability concerns social, cultural and political issues affecting people's lives within and between nations. However, as just and inclusive societies are characterized, among other factors, by participation and solidarity, today's societies may have a way to go in developing such inclusive societies for all, as young children's self-understanding and future expectations are influenced by 'racial' equality and social class [6]. Substantive aspects such as social cohesion, inclusion, belonging and identity are central in defining social sustainability [7]. At the opposite end of the spectrum, social exclusion can be an impediment to social cohesion and social sustainability. As identified by OMEP 2016 [3], social exclusion constitutes a potential high-risk situation for migrant, refugee and asylum seeking children and their families, and it also weakens the common sense of belonging and identity that characterizes social cohesion [8].

By investigating what today's research in early childhood says about multicultural perspectives, diversity and belonging in the context of education for social sustainability, our study aims to contribute to new knowledge that can strengthen the perspective on social sustainability and support the situation for migrant and refugee children in early childhood institutions.

1.1. Background: Education for Sustainability in Early Childhood

Throughout the 1980s, the term *Environmental Education* was the international term used in debates on a growing concern for environmental issues that had occurred in the course of the 1960s and 1970s [9]. The Belgrade Charter (1975) [9] and The Tbilisi Declaration (1977) [10] aimed at the education of people, sought to pay attention to and work towards solutions of environmental problems and prevent new ones [10]. The Rio turning point and Agenda 21 in 1992 suggested a balance between the needs of the environment and the needs of humankind, and the Agenda 21 chapter 36 [11] also introduced and identified the *Education for Sustainable Development* as critical in order to promote sustainable development.

The terms Environmental Education, Education for Sustainable Development and Education for Sustainability are sometimes used interchangeably, and there are differences and tensions in how the terms are perceived. It has been argued that the turn from a focus on purely environmental issues within Environmental Education, towards more anthropocentric and pluralistic interpretations within Education for Sustainable Development, facilitates typically human needs such as human rights, democracy, and social issues at the expense of environmental issues [12]. Other researchers have claimed that Education for Sustainability, to a larger extent than Education for Sustainable Development, answers to the holistic perspective that acknowledges humanity's dependence on nature [13]. In this review, we do not take a stand on that particular issue; we prefer to use the term Education for Sustainability, and apply the UNESCO 2012 [14] meaning of the concept of Education for Sustainable Development—education for social transformation and with the goal of creating sustainable societies.

Education for sustainability aims to influence people's thinking and actions, and thereby contribute to sustainable decisions being taken. The UNESCO report, *The contribution of early childhood to a sustainable society* (2008) [15], concluded, among other conclusions, that early childhood education for sustainability is crucial as values, behavior and skills that are established in childhood may impact on choices and attitudes later in life. Further, the report pointed out that sustainability challenges us to move towards inclusive rather than segregated societies, and that a call for conceptualizations

that strengthens interdependence, solidarity and justice was needed. The report *Taking children seriously—how the EU can invest in early childhood education for a sustainable future* (2011) [16], stated that even very young children are capable of advanced thinking in the context of social and environmental issues. Several researchers have thus advocated that, as a foundation for an understanding of sustainability is shaped in childhood, education for sustainable development should be emphasized in early childhood education [15,17–19].

After Julie Davis's [20] pioneering review on early childhood education for sustainability revealed that researchers within the context of education for sustainability generally did not include early childhood education in their research, and researchers within the field of early childhood generally did not investigate sustainability issues, two additional early childhood reviews on the subject have been conducted. Somerville and Williams [19] investigated whether there had been a change in focus on sustainable development in early childhood education research after Davis's (2009) review, and whether the research effort had increased. Somerville and Williams [19] did not investigate the social dimension in their study; however, the review from Hedefalk et al. [21] conceptualized the social dimension as involving justice, equality and a democratic approach [21]. Hedefalk et al.'s [21] review identified two different definitions of education for sustainability in early childhood education, i.e., it could be perceived as a threefold approach to education 'about', 'for' and 'in' the environment, and it included three interrelated dimensions—economic, social, and environmental. The authors pointed out that although both economic and social issues could cause unsustainable practices, they did not find any articles focusing on larger social issues related to sustainability. Hedefalk et al. thus questioned whether the social dimension was overlooked on the grounds that the focus on the environmental dimension overshadowed it [21].

1.2. Research Topic and Aim: The Unexplored Field of Education for Social Sustainability

In political as well as educational debates, a turn is seen in how sustainability is perceived, and an awareness of the differences in perceptions of the relationship between nature and society is crucial in the ongoing sustainability debate [22]. Traditionally, the understanding of sustainability and sustainability education is embedded within a three-pillar model where environmental, economic, and social aspects are interwoven [17,23]. As each aspect within the three-pillar model has developed independently, the interdependence and relationship between the three aspects, or dimensions, has not been sufficiently formulated, and one aspect in particular, the aspect of social sustainability, seems to lack a clear and coherent definition [23].

While issues such as global warming have been the dominant idea for a long time in the general worldwide sustainability debate and research, research into documenting the practice of environmental education has been the dominant area within early childhood sustainability research [24]. The field of early childhood educational research is currently focused on expanding the knowledge-base, elaborating upon what sustainability empirically means in early childhood education, and what it could look like in practice. This new research covers many aspects and dimensions of sustainability; nevertheless, it is often stated that the social dimensions of education for sustainability, which comprise questions regarding social justice and human rights, are less researched, compared to, for example, the ecological dimensions [25,26]. As elaborated, this is a fact also reflected through the findings in the review by Hedefalk et al. [21].

The social dimension of Education for Sustainability, as formulated by the UN, is about ensuring that all people have a good and just foundation for a decent life and have the opportunity to influence their own lives and the communities in which they live [27]. Social sustainability requires ethos of compassion and equality [6,28], and can embrace a wide range of aspects, from the most general such as social justice and optimizing quality of life and well-being for future generations, to more specific goals such as enhancing people's democratic right to participate, take action, and influence their own lives in all institutions they are a part of.

Eizenberg and Jabareen [23] approach social sustainability, among other approaches, within the concept of equity and diversity, where *all* members of a society, regardless of origin, race, ethnicity, gender, or color are permitted to participate in the society as peers. As social inclusion and the sense of community and belonging constitute social sustainability, different social or ethnic groups may be exposed to a lack of recognition and opportunities to participate in the society as equal citizens [23]. The concept of 'belonging' is introduced by Hägglund and Johansson [26] and grouped with the concept of 'values', and as an important concept within early childhood education for sustainability. Children's 'belonging' is related to their right to be involved, and linked to an identity as citizens, both in the local and the global context as world citizens. In children's peer cultures, the children's membership to the group is being continuously produced and re-produced [29], and the premises for social inclusion and belonging can be subject to negotiations, where characteristics such as age and gender can be used to legitimize exclusion [26,30]. Previous research has shown that migrant children and youth can be especially exposed to such experiences of outside-hood [4,31–33]. As children with the same social and cultural background often can share some kind of knowledge on how the world works [32], migrant children may be aware of the risk of being perceived as on the outside of a community to which they do not belong [4].

In the context of early education for sustainability, the issue of 'citizenship' is a value that is frequently emphasized [19,26]. In kindergarten, the children's experiences of 'citizenship' and of being included in the community can be related to their experience of belonging, regardless of race, ethnicity or origin [34,35]. As the demographic change in the European population is a fact, the issue of migrant children's experiences of citizenship and belonging is a topic that should be placed highly on the agenda in early childhood education for sustainability. In this review of the research literature in the field of Early Childhood Education for Sustainability, we seek to answer the call for additional research and conceptualization of social sustainability, and examine the concept of "belonging" within this context. Four research questions guided our study:

1. To what extent is a holistic and social perspective on sustainability applied/reflected in research articles regarding Early Childhood Education for Sustainability?
2. How is the social dimension of Education for Sustainability conceptualized by researchers in Early Childhood Education?
3. What does research say about diversity/multicultural perspectives and migrant children as related to the social dimension of Education for Sustainability?
4. What does research say about 'belonging' (and related concepts) in the context of Early Childhood Education for Sustainability?

Although our study investigated several of the same journals as the two aforementioned reviews by Somerville and Williams [19] and Hedefalk et al. [21], our review differs from those by our explicit focus on social sustainability, belonging and diversity. Our study's main conclusions revealed a lack of research on diversity, multicultural perspectives and migrant children's situations within the context of early childhood education for social sustainability. Additionally, although 'holistic' approaches were applied within the research articles, new questions were raised concerning what such approaches within the context of education for sustainability actually imply, as the content contained in the term 'holistic' varied.

2. Materials and Methods

In this literature review, only articles published in educational research journals were included, which means that books and book chapters have been excluded. Although the study primarily intended to focus on research within early childhood education, the review initially included other education journals as well. This was based on a wish to also include Nordic education journals in the review, and the number of Nordic journals that mainly focused on early childhood education was limited.

Being aware of that, two other literature reviews on the issue of education for sustainability in early childhood education were conducted in 2015 [19,21]. These two reviews were included as research articles within the review in addition to being read as preparation before conducting this review. Since these two reviews have been conducted quite recently, the time span for this review was set as quite short, between 2013 and 2017/2018.

As both of the above mentioned reviews included the same research journals as Davis's [20] often-cited review, this review's first step comprised 12 of the same journals (both Nordic and international) included in Hedefalk et al.'s [21] work, with an additional 8 journals, of which 4 were Nordic. In other words, the total of 20 journals that were investigated within the timespan, comprised 9 Nordic journals and 11 international journals.

2.1. Keywords and Selection of Articles

The 20 journals were investigated by searching for keywords in the articles' titles, keywords, and/or abstracts. As the concept of 'belonging' is complex, dynamic, and multidimensional [30,36–38], we found it necessary to include terms that we considered related to (or elements of) 'belonging' within Education for Sustainability, such as 'citizenship' and 'agency'.

The keywords used in the search were sustainability, sustainable/environmental development, social sustainability, social dimension, belonging, citizenship, democracy, and agency. In the Nordic journals, the search was supplied with the same words in Norwegian and Swedish, in order to include articles written in those languages. Four of the journals of education had the term 'sustainable/sustainability or environmental' in their title, and, as a consequence, it was not essential that these terms should also be reflected in the article's titles, abstracts, or keywords. The search within these journals was, therefore, conducted in such a way that all titles and abstracts within the timeframe were read. Articles that only focused on nature/environment and, in addition, focused on children/youth above the age of 10, were excluded, while articles focusing on early childhood were included. Considering that one of the research questions was about finding out how social sustainability was conceptualized in research, almost all articles that conceptualized social sustainability were read and included, even if they were aimed towards youth/young adults.

A growing body of research that investigated children's voices and children's right to participation meant that several articles were found by searching the terms 'belonging', 'citizenship', and/or 'agency' in titles, keywords, or abstracts. These articles were read thoroughly in the first step of the review, in order to decide whether the articles mentioned or were aimed towards Education for Sustainability or Environmental Education, or whether the authors related the concepts to issues of sustainability, climate change, living in the Anthropocene, etc. If they did not comprise any such topics, they were excluded from the review.

2.2. Procedure for Conducting the Review

The review was conducted in four steps. The first step investigated the 20 journals as described above, resulting in a total of 59 articles that were relevant for further investigation. In the first step, the results disclosed that, in two of the chosen 20 journals—*Journal of Early Childhood Research* and *Journal of Education for Sustainable Development*—no relevant articles were found for the review within the chosen timeframe.

In step two, the 59 articles were read in order to decide whether the content was relevant for the review or not. Even if the review started with a very broad focus regarding the age group that the research articles investigated, choices had to be made along the way in order to both limit and expand the search towards answering the research questions. The first research question sought to determine to what extent a holistic approach was applied in research articles in *early childhood*. As a consequence, research articles that only focused on the environmental dimension and children above the age of 10 were excluded from the review. On the other hand, regarding the next research question which explored how the social dimension was conceptualized in *early childhood research*, we had to

make some concessions as there was little research on this topic. As such, research articles that actually outlined or even investigated social sustainability were included, even if the age group in focus was above the aforementioned age or young adults, for example, Reis and Ferreira [39] and Miedema and Bertam-Troost [40]. As a result of reading and re-reading the articles, the final number of journals included was limited (See Table S1) and a total of 41 articles were considered relevant and were included in the final steps of the review (See Supplementary Materials—List of 41 articles included in the review).

After finishing step 2, the 41 articles were then read again and investigated thoroughly. As a third step, the articles were organized in feature maps [41] that highlighted the articles' main goals, research questions, applied theory, method, sample size, and conclusions. Articles that had been found in step 1 by using keywords such as 'belonging', 'citizenship', ''democracy', or 'agency' (in English, Norwegian, or Swedish) also obtained an additional column in the feature map which specified how and to what extent the content of the article was linked to issues related to Education for Sustainability.

As a fourth and final step of the review, new feature maps were developed, this time in order to reveal how the content of the chosen articles related to the four research questions that guided the review. In this step, topics such as 'holistic' approach, social sustainability, diversity, multicultural perspectives, and migrant children were investigated. To establish an adequate overview on the feature maps in the third and fourth steps of the review, and in order to summarize and analyze the findings, a computer program for text analysis, Nvivo, was used. By creating and using nodes with keywords that reflected the content of the research questions, the computer program proved to be a useful tool to identify similarities and inequalities in the research material. The same method was also used to create an overview of the different methods used in the research articles.

3. Results

3.1. Research in Education for Sustainability between 2013 and 2017/2018

The 41 articles from the 14 journals investigated topics in a range from the teacher's competencies and interpretations regarding Education for Sustainability, the teacher's understandings of sustainability and the teacher's as well as the children's role in supporting social change and solving challenges of local and global patterns of unsustainable lifestyles, whether that be the issue of poverty and food security within the context of Education for Sustainability, nature play and children's lived experiences as global citizens, or explorations of educators conceptual understandings and pedagogical practices related to early childhood education for sustainability.

An interesting finding is the 'more-than-human' as a subject for investigation related to Education for Sustainability. Perspectives that focused on connectedness with nature, human–animal relations, common worlds, and relations with the more-than-human or non-human were found in Nordic and international articles alike [42–46]. Some articles even argued that the hegemonic way of understanding the relationship between the human and the more-than-human or non-human should be challenged in order to secure a global and holistic change for sustainability [45,47–49].

Another important finding worth noting is that the issue of children's agency was recurring in many of the articles, and children as agents for change and the need to listen to children's voices was described both in relation to environmental aspects as well as social aspects of sustainability [47–58].

3.2. Application of a Holistic Perspective in Education for Sustainability

A holistic perspective in Education for Sustainability was more or less applied in an overwhelming majority of the articles (36 of 41). At least three interdependent dimensions—environmental, economic, and social—were described in almost all of the articles, implicitly or explicitly, and, while some of them mainly related their research, findings, and discussions to the environmental dimension [59,60], a large proportion of the articles explicitly supported a socially critical and holistic informed perspective on Education for Sustainability [21,40,48–52,54,56,57,61–66].

Five of the articles (all from one North American journal), mainly used the term 'environmental education', but, as Iskos and Karakosta [67] described, the environment is perceived holistically with the inclusion of the natural, the artificial, the structured, the socio-economic, and the historical dimensions. Children's rights and children's voices were discussed as important issues related to environmental education [55], and Nugent and Beames [68] claimed that outdoor play could be a method for fostering socio-culturally responsive ways of thinking and caring. Reis and Ferreira [39] explored empowerment, participation, and children as responsible citizens as well as inclusion and social ties within communities. However, these articles applied an approach which revolved around nature- or outdoor-based activities with children in order to include children in environmental research, to achieve pro-environmental behaviors, children's awareness and care for the natural environment, or to strengthen their environmental identity and their sense of comfort and trust in nature.

Several of the articles argued that education for sustainability in early childhood was often being (mis)interpreted into a narrow focus on nature and outdoor play. The authors contended that there was much work to be done to extend the thinking and practice related to the education for sustainability beyond the environmental dimension, in order to embrace a more holistic perspective that also incorporates the social and cultural dimension. A greater focus on sociocultural issues like equality and justice and the negotiation of new approaches to link democratic values to issues of sustainability within education was called for [49,50,52,58,61,69,70].

3.3. Conceptualizations of the Social Dimension, Multicultural Perspectives, and Belonging

The social dimension of Education for Sustainability was, to some extent, present in the vast majority of the articles, very often described within the explanation of the three interdependent dimensions of sustainability and conceptualized or emphasized in various ways. Recurring topics related to the understandings of the social dimension in the articles were democracy and democratic values, children's rights, citizenship, children as active citizens, and as participating agents of change [49,50,52–54,61,62,66,70,71].

Other topics described as related to the social dimension were social participation, diversity, social and economic justice, human rights, equality, responsibility, and tolerance [40,51,62,63].

Although various conceptualizations of the social dimension of Education for Sustainability were found in most of the investigated articles, only a few of them had an *explicit and outspoken* focus throughout the article with aims directed explicitly towards the social dimension, investigating children as agents of change for social sustainability and their agency as global citizens to affect social justice. Hammond et al. [51] adopted the term "social sustainability" in investigating children's perspectives on poverty, and they argued that working with children with Education for Sustainability and sustainable futures should involve working with social issues such as global citizenship, social justice, and human rights. Additionally, the articles of Reunamo and Suomela [62] and Miedema and Bertram-Troost [40] both conceptualized the social dimension of Education for Sustainability as related to global citizenship. Reunamo and Suomela [62] argued that the fundamental experiences of belonging, understanding, and agency are rooted in early childhood, and that the more warmth and concern children encounter, the more concretely they can feel their belonging within a shared, even global, society [62]. Miedema and Bertram-Troost [40] applied an explicit perspective on social sustainability when investigating challenges of global citizenship for a worldview education. Exemplifying the current global climate, they discussed the necessity to think and act more globally in both religious education and worldview education in order to prevent the development of narrow-minded or radicalized children and young people.

Issues of Education for Sustainability related to migrant children, multicultural aspects, or diversity were neither investigated nor outlined; however, the subject was identified as relevant in some of the articles [39,40,50,56,61,62,66,70,72]. Pramling Samuelsson and Park [50] considered that the diversity of cultural contexts in children's lives could be what sustainability might be all about. Sageidet [56] stated that Education for Sustainability as a pedagogical approach promoted a

solidarity as well as a global perspective and could contribute to children's multicultural belonging. With reference to Dewey's pragmatist view, Miedema and Bertram-Troost [40] argued that there is a need for children to be confronted by and acquainted with other children's religious, cultural, ethnic, and economic backgrounds. Reis and Ferreira [39] included diversity and multicultural perspectives in their discussions revolving around inclusiveness and social ties within communities, and they also claimed that the sharing of experiences through social occasions, celebrations, and growing food could also help build a sense of belonging.

3.4. Overview of the Methods Used in the Research Articles between 2013 and 2017/2018

In the review, 15 of the 41 articles turned out to be based on literature studies and/or document analysis (See Tables S2 and S3 for overview of methods). Of these, 5 articles were empirically based on questionnaires or surveys sent to a large number of teachers, student teachers, and/or teacher educators, while an additional 3 articles were based on projects or workshops with teachers and/or student teachers, or teacher educators. Six articles were empirically based on data from interviews or focus group interviews with teachers, student teachers, and/or teacher educators. A total of 12 out of the 41 articles based their findings on research that included children: case studies/fieldwork together with children (4), larger workshops/projects with children as participants (5), interviews or dialogues with children (1), and observations (photo and video observations) of children (2). Of the 12 articles that included children in their research, 4 had an outspoken focus towards issues related to social sustainability.

4. Discussion

4.1. The 'What' in 'Holistic'—What does 'Holistic' Actually Mean?

The findings in this review reveal that the call for more holistic approaches towards Education for Sustainability has resulted in a growing body of research about such approaches, perhaps especially within the early childhood research context, where the majority of the articles in the review were incorporated within a holistic approach. Although the most regular way of applying a 'holistic' approach proved to be the inclusion of the three interdependent dimensions (environmental, social, and economic), our findings indicate that the 'holistic approach' implies different understandings of what 'holistic' in the context of education for sustainability might actually mean. While some articles claimed to advocate a holistic approach by including the three-pillar model and especially mentioned the social dimension, other articles mentioned artificial and historical dimensions. Several articles argued that a 'holistic approach' to education for sustainability should include the interdependence between humans and nature, the 'more-than-human' or nature as a co-constructor, and thus challenge the anthropocentric worldview. Such arguments can be understood in relation with the criticism of the transformation of the term Environmental Education into the term Education for Sustainable Development which, it has been argued, could be viewed as a product and carrier of globalizing forces [73] and as an anthropocentric turn that facilitates typically human needs at the expense of environmental issues [12]. Also, Seghezzo [22], who acknowledged the interdependence between humans, and between humans and nature, as a strong political tool, has criticized the common three-dimensional notion of sustainability, arguing that such a triangle formed by People (social), Planet (environment), and Profit/Prosperity (economy), forms an anthropocentric framework that comprises neither the interaction nor the interdependence between human aspects, space and time, and thus needs a re-examination.

4.2. Diversity and Migrant Children's Situations within Education for Social Sustainability

Even if diversity and multicultural aspects were, to a certain extent, subject for investigation in some of the articles, our review revealed that topics revolving around migrant children's situations and their experiences of belonging to communities or society have neither been particularly investigated

nor discussed in the context of Early Childhood Education for Social Sustainability. Considering that the review has identified a growing body of research that discusses the importance of citizenship and children as active citizens, it is remarkable that migrant children's situations related to such citizenship through the experiences of social inclusion and belonging, have not been addressed.

4.3. Children's Role in Research in Education for Social Sustainability

More than a third of the articles included in the review proved to be based on literature studies and/or document analysis. Methodology was not a subject or category during the selection of articles, and this was, therefore, a random discovery. Somerville and Williams's [19] review criticized that studies within global discourses of children's rights tend to be characterized by advocacy rather than research that provides evidence for practice. The findings from our review provide a basis for additional critique, as a relatively small number of the articles included data from research with children. Rather, the research focus in the articles that were not based on literature studies tended to aim towards investigating teachers and educators' notions and experiences on how to work with education for sustainability with children. Thus, relatively few articles actually explored what education for sustainability with children might be.

The articles that researched aspects of *social* sustainability with children investigated children's theorizing of social justice, fairness, poverty, and social responsibility. This corresponded with the growing body of research that focuses on children as problem solvers, global citizens, and agents of change for sustainability. One article, however, posed a different, critical perspective on the reality of children's possibilities. Hedefalk [57] investigated children's interpretations in discussions of rules during play. Based on her findings, she questioned and problematized children's opportunities to critically discuss and evaluate, and, by that, actually be 'agents of change for sustainability'. She concluded that children, by and large, follow the rules set by the teacher, without questioning, and, therefore, have rather limited opportunities to evaluate whether the rules are reasonable or not. These are important reservations, which challenges the concept of children as problem solvers and agents of change for sustainability.

5. Conclusions

As a result of significant growth in research on Education for Sustainability within Early Childhood Education, it is clear that the call for holistic approaches has been met, as the majority of research articles incorporated or advocated such approaches to various extents. However, these findings formed the basis for additional questioning—what does a holistic approach within the context of education for sustainability actually mean? As this review started out with a perception of a holistic approach, implying that the social and economic dimensions are included together with the environmental dimensions, the findings proved that holistic approaches to education for sustainability could include many more aspects such as the interdependency between species, between humanity and the more-than-human, between humans and animals, between local and global issues, and between the individual and the society. These findings add to the ongoing debate on the content within 'education for sustainability' and correspond with Seghezzo's [22] call for alternative and expanded frameworks for the understanding of sustainability that include the interdependency between humans and between humans and nature. Additionally, Eizenberg and Jabareen's [23] suggestions of a new conceptual framework for social sustainability should be explored further within the context of education for sustainability in early childhood.

The literature review disclosed that a dominant route into social sustainability considers children as problem solvers. This is an optimistic, future-oriented perspective and reveals a view of the child as a competent child. However, we question whether this is too optimistic and gives too much credit to the child's competence. Such a view of the child also gives too much responsibility to children to solve problems of unsustainability. The politics of unsustainability is also governed by a community

of adults, and responsibility to solve problems cannot be for children to bear on their own. As we see it, taking up issues of social sustainability should be a generational issue.

The most important finding in this review, as we perceive it, is the lack of particular and targeted research on migrant children's situations within the context of early childhood education for social sustainability. Through the analysis and discussion above, we have opened up an argument about critical engagement with the concept of diversity and multicultural aspects in research that connects to sustainability and early childhood. Furthermore, the findings create a greater awareness of the crucial importance of migrant children's experiences of belonging for future sustainable societies.

As this state-of-the-art literature reveals, alternative perceptions of what a holistic framework for Early Childhood Education for Sustainability might be create room for new understandings of how it should evolve in order to comprise migrant children's situations and perspectives, and their experiences of belonging to the local and the global society. Further research on education for social sustainability within the field of early childhood education is needed—in particular, research realizing the Convention on the Rights of the Child [2], encouraging practice-oriented research where human dignity and education for life, within the most formative years of a child, is a motivating driving force.

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Early Childhood Education for Sustainability Through Contradicting and Overlapping Dimensions

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Abstract

Purpose: The article investigates how to make a broader understanding of sustainability relevant for early childhood education (ECE) guided by the four dimensions suggested by United Nations Educational, Scientific and Cultural Organization: ecological, economic and social/cultural sustainability, and good governance.

Design/Approach/Methods: Previous research on ECE on sustainability is discussed in relation to the four dimensions and to Biesta's concepts of socialization, qualification, and subjectification.

Findings: The investigation finds that all four dimensions are necessary in ECE for sustainability, and it suggests how the dimensions can be understood, how they may overlap, and how they can be contradictive.

Originality/Value: The article depicts how children's opportunities to engage and to disturb established ways of thinking can be facilitated through all dimensions.

Keywords

Conflicts, dimensions of sustainability, early childhood education, overlaps

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Introduction

Early childhood education (ECE) is a rapidly growing field of both political and economic interest for early interventions to meet contemporary challenges (Biesta, 2014; United Nations [UN], 2015). These interventions are often presented as methods for mending individual or group-related deprivations, such as class differences, immigrants' limited knowledge of the local language, and behavioral or learning problems detected at an early age. This approach could be useful if we knew the answers to the problems we address. When facing concerns over the impacts of how we live our lives and how we manage natural resources, including the possibly negative ramifications of what might be seen as progress today, we realize that we do not have all the answers with regard to what these contemporary challenges are and how to handle them. Moreover, topics such as war, poverty, and climate change clash with an understanding of the optimal childhood spent in joy and harmony while being protected from dangers. Thereby, two contradictions are depicted: first, educating children without fully knowing what they need; and second, tackling real-life problems without curbing a happy childhood. These contradictions might explain why it has taken longer to address sustainability in ECE than in other parts of education (Ärlemalm-Hagsér & Davis, 2014; Davis & Elliot, 2014). The situation is beginning to change, however, and there are strong voices arguing for the importance of education for sustainability, even for young children (Davis, 2009; Sageidet, 2014; Pramling Samuelsson, 2011). We aim to position ourselves among these strong voices and contribute by outlining a theoretical approach to sustainable education in ECE that emphasizes the contradictions and overlaps among several dimensions.

The complexity of sustainability has often been dissected into three dimensions: ecological, economic, and social/cultural. References to these three dimensions in ECE are dominant (Boldermo & Ødegaard, 2019; Eizenberg & Jabareen, 2017; Hedefalk et al., 2015; Pramling Samuelsson, 2011; Siraj-Blatchford, 2016; Somerville & Williams, 2015), and the main emphasis has been on the environmental or ecological dimension (Davis & Elliot, 2014). Achieving sustainability through these three has proven difficult, and a fourth dimension, called "good governance," has been suggested (Sachs, 2013; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2017), although the social/cultural dimension often seems to overlap good governance, pointing to children as citizens (Hägglund & Johansson, 2014). Despite UNESCO's emphasis on these four dimensions, there are only some studies (e.g. Phillips, 2014) referring to all four dimensions in ECE settings.

The Nordic tradition has a long and strong tradition of children's democratic involvement, which we consider as one of the key elements of good governance. Given the limited amount of research that includes good governance in sustainable education, we argue for the inclusion of the fourth dimension. We argue that all four dimensions are needed to bring sustainability in line with

young children's everyday lives in ECE and aim to go beyond the overall emphasis on environmental and outdoor education, by structuring the question as follows: *How is sustainability, as it relates to the dimensions of ecology, economy, society/culture, and good governance, relevant in early childhood education?*

We start by outlining earlier research with regard to how sustainability is approached in ECE. We then review our understanding of the four dimensions of sustainability, followed by how these dimensions can be apparent in ECE, in line with Biesta's (2011a) outlines of educational cultures. These four dimensions pave the way for a variety of content in ECE. In addition, by involving the dimension of good governance, reflections regarding how to facilitate children's involvement in educational practices and cultures become of interest. From the differences, overlaps, and contradictions among the four dimensions, we conclude that the multidimensional and contradictory challenges of educating for sustainability in ECE call for an overlap of all four dimensions of sustainability, including good governance. Good governance builds upon an educational culture that facilitates children's opportunities to disturb the established ways of thinking, which could pave the way for new practices when striving for achieving sustainability.

From one dimension to several dimensions of sustainability in education

As early as at the UN's conference on environmental problems in 1972, education was presented as a part of the solution—and it still is seen as such (UN, 2015; UNESCO, 2017; UN's Sustainable Development Goal 4, 2019). The question of how to facilitate or understand sustainability comes up frequently. Following the historical line of how to meet the challenges of educating for sustainability in ECE, the ecological dimension is evident. The ecological dimension includes aspects from nature conservation education and environmental education. Several researchers claim to have found a close relation between this emphasis on nature-based activities and environmental awareness (Beery, 2013; Chawla, 2006; Green et al., 2016). However, this linear and single-based causality between spending time in nature and connectedness with it is also contested (Dickinson, 2013) and calls for educational awareness of how to facilitate learning as more than reproduction. In addition, the need to reduce poverty and distribute resources more evenly becomes evident in achieving sustainability.

Three dimensions representing ecology, economy, and social/cultural aspects follow from the Brundtland Report (1987), in which sustainable development is outlined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987, s. 29). In the report, reducing poverty and distributing resources more evenly are central in defining both present and future needs, together with acknowledging the importance of people living rewarding lives, which are dependent on human relationships and

cultural belonging. Framing the concept of sustainable development in a manner similar to Brundtland enlarges the concept of future development from environmentalism to include human and economic perspectives. Sustainability thus concerns more than environmental issues, envisioned in three dimensions of sustainability: ecological, economic, and social/cultural.

There has been interesting research conducted when approaching these three dimensions in ECE (Siraj-Blatchford et al., 2016). Education for economic sustainability stands out as the least developed of the three dimensions (Siraj-Blatchford & Pramling Samuelsson, 2016, pp. 8–9). In the Nordic ECE context, the economic dimension of sustainability is rarely approached. Economic differences seem to be neglected due to the widely accepted and egalitarian social democratic welfare model (Sadownik, 2017). In our rapidly changing society, the economic social democratic welfare model is also challenged and changing, and the economy facilitates both children's everyday life and sustainability. Following these arguments, we state that economic sustainability is also relevant in ECE.

Achieving sustainability through emphasizing ecological, economic, and social/cultural dimensions has proven difficult, and a fourth dimension—good governance—was included in the UN's Sustainable Development Goals (Sachs, 2013; UN, 2012). The UN organ for education for sustainability, UNESCO (2017), based their work on these four dimensions and included good governance, emphasizing democracy, politics, policy, and decision-making. Therefore, sustainability is understood as the linkages and interdependencies of the social, political, environmental, and economic dimensions of human capabilities. The dimensions of sustainability can be illustrated in a Venn diagram, as shown in Figure 1. We see the necessity within each dimension but are convinced that optimal sustainability can be achieved only when actions for improving sustainability relate to all four dimensions. This is represented by the overlapping dark circle in the middle of Figure 1.

This holistic view forms the base for our discussion of how sustainability as it relates to dimensions of ecology, economy, society/culture, and good governance is relevant in ECE. This does not imply that education for sustainability needs to address all four dimensions at the same time. Rather, education may focus on one or two, but it must not be in irreconcilable conflict with other dimensions of sustainable development. The following example from an ECE practice in Norway, presented by Holmvik (2019), illustrates the four dimensions:

> Like many other ECE institutions in Norway, the kindergarten called "The Blue Orange" wanted to stop using disposable shoe covers that parents wore when entering the building. The teachers' primary aim was to prevent consumption and plastic waste. The kindergarten changed their routines and, rather than throwing away the used shoe covers at the end of the day, they started displaying them. After a while, some parents started to take off their shoes instead of using the shoe covers. The children picked up on this and described their parents' actions. From the children's descriptions of how their parents left their shoes



Figure 1. The four dimensions of sustainability.

on the doorstep instead of using the shoe covers, the teachers were able to change their way of implementing the concept of "no use of shoe covers." Instead of removing the shoe covers or telling the parents not to use them, the children made the parents take off their shoes.

We see that, in the first place, the teachers approached ecological and economic sustainability by trying to limit consumption and reduce the use of plastic, which harms the ecosystem. They made a system for reuse from how we mostly deal with reuse in our culture, and thereby they also approached the social/cultural dimension. In the end, some of the involved parents came up with new ways of solving this, ways that the children brought forward, that resulted in an even more sustainable practice than the teachers had foreseen. The simple solution of not using the shoe covers by leaving the shoes at the doorstep relates to all four dimensions. The example illustrates that the dimension of good governance can be key to finding a good solution.

Approaching four dimensions of sustainability in ECE

In the introduction, we point to two contradictions when approaching sustainability in ECE: one is the problem of education for an unknown future, and the other is the contemporary and not so pleasant challenges of unsustainability that we must face. Such contradictions can be said to be an always present issue in education, in line with the well-known "paradox of education" (Løvlie, 2007a), in which education is seen as a preparation for the future but grows out of the past. It seems as though this paradox appears more relevant than ever when approaching education for sustainability (Wals & Corcoran, 2012). Approaching all four dimensions, as well as considering ways to increase the overlapping area in the middle, represents the opposite of

approaching linear and single-based causality as is done in some early intervention programs that focus on fixing one "thing" to solve the problem, for example, the contemporary urbanized child's disconnectedness to nature.

Despite emphasizing the overlapping area, we start by outlining our understanding of each dimension, and how they can be apparent, overlapping, and contradicting in ECE, building on research that describes how ECE approaches sustainability. The first dimension we present is good governance, operationalized in line with Biesta's (2011a) outlines of educational cultures as room for qualification, socialization, and subjectification. The way research describes how ECE approaches sustainability, within all four dimensions, is seen in the light of our understanding of Biesta's concepts.

Good governance

How to approach contradictions and conflicts is a recurring theme in sustainable education, often connected to the political dimension of sustainability, or what is often referred to as good governance. Håkansson et al. (2019) have carried out a research synthesis of how the political dimension can or should be staged in education for sustainable development (ESD) teaching and learning content. Their main result is synthesized in three approaches: a socially critical approach (SCA), a social learning approach (SLA), and a radical democratic approach (RDA). In all three approaches, conflicts are taken for granted, but whereas SCA and SLA tend to downplay conflicts with an aim to produce political sameness, RDA differs by claiming that consensus should not be the aim (Håkansson et al., 2019, p. 7). RDA often takes departure from Mouffe (2005) and the notion that democratic society has to create space for conflicts to meet contesting demands, make place for struggling hegemonic structures, and make room for different interpretations of sustainability in education. The emphasis on conflicts—instead of downplaying them—is in line with emphasizing the paradox of education and contradictions when all four dimensions of sustainability are at stake. Therefore, as several education researchers do (Lundegård & Wickman, 2012; Öhman & Öhman, 2013; Tofteland, 2018; Van Poeck, & Vandenabeele, 2012), we take on RDA when it comes to the political dimensions of sustainability. The political dimension, which corresponds to Mouffe's (2005) concept of "police," is understood as the system that is supposed to distribute power and make room for diversity, subjectivity, and multiple perspectives, conceptualized as good governance in Figure 1. In ECE, the "police" is organized through rules, structures, choice of content, plan for the day or the activities, and so on.

We take departure from Biesta, who looks to Mouffe. Biesta (2011b) claims—like the RDA approach—that consensus-oriented learning obliterates social differences for the sake of maintaining group unity, which excludes dissent. Biesta (2011b), with reference to Mouffe, also claims that society might miss the youngest or marginal stakeholders' contributions when criteria for

participation, such as verbal language, must be learned before these group experiences and views are taken into account. Conflicts are seen as important for challenging what's taken for granted and for possibilities to find new solutions to contemporary problems. Thus, education appears as a risk: When not fully knowing the answers or providing room for more than we can plan for, we lose control, even though we are in charge of the education of the young generation. Instead of trying to avoid these problems, we embrace them, leaning on Biesta (2014), who emphasizes "the beautiful risk of education."

We understand ECE as an educational culture, that is, a culture that aims to forward specific interests and values (Biesta, 2011a). In our case, the specific interest and values are sustainability, solidarity, and equity for coming generations. Values are not only a crucial concept in this approach but the turning point when planning and performing educational practices. Multidimensionality, diversity, and subjectivity, wherein multiple actors are met in temporal and spatial contexts, are required to promote sustainability, solidarity, and equity. Educational cultures are rapidly changing, as are culture and nature that education is a part of. Educational practices have to relate to changes and consider which changes to embrace, which to facilitate, and which to fight. To cope with these always present changes and how to meet them, Biesta (2011b) suggests that the values we aim to promote are the turning point for how to facilitate and meet changes. He differs between quantitative changes and qualitative changes. Quantitative changes are when a person acquires skills to be a part of the already existing culture, and thereby the number of persons who are a part of the educational culture increase. Qualitative changes are when the educational culture makes room for new ways of thinking and participation that help reach the values we pursue. By giving room to new ways of governing toward sustainability, the system changes, rather than the individual teacher or child. Such changes require agents of change and may easily involve conflicts, as emphasized in the RDA.

To conceptualize such changes, Biesta (2011a) outlines that educational cultures should emphasize socialization, qualification, and subjectification. Qualification is similar to the traditional understanding of learning, whereby learners gain established knowledge, techniques, skills, and dispositions. Traditionally, qualification has been the main aim of education, but often socialization is also seen as an important aspect in education. In ECE, socialization, which is understood as learning how to participate and behave in an established culture through dialogue among different people and activities, has a long tradition. Most educators approach these two as the central aspects in education. Biesta argues that a third aspect is needed, conceptualized as subjectification. This is about human freedom and the opportunities to come forward as an outsider of the established educational culture. Thus, subjectification appears as the opposite of socialization; it is about coming forward with something new—something that is seen as "not how we do it here," something that challenges our common ways of facilitating thought and action. To obtain new solutions,

education must embrace the "strange point of view" of newcomers to contribute toward qualitative changes. To obtain new insight, we need educational cultures that create and evolve in accordance with a range of varying participants who are living together in their contexts, in a "world of plurality and difference" (Biesta, 2006, p. 9). New insight needs agents of change who can disturb the existing educational culture and thereby facilitate qualitative changes and new solutions to sustainability.

When presenting research on sustainable education in ECE within each dimension, we look for overlaps and contradictions, quantitative and qualitative changes, socialization, qualification, and subjectification.

Ecological sustainability

Approaches to environmental education can be summarized as the development from education about the environment in the 1970s, through education in nature (1980s), and education for the environment (1990s) to a participatory focus in education for sustainability at the beginning of the millennium (Tilbury et al., 2005). Building on environmental education, education for ecological sustainability in ECE has been, and still is, worked with through all these aspects.

There is a focus on education in nature in large parts of the world, perhaps particularly strong in Scandinavia (Wagner & Einarsdottir, 2006), and it spreads through western cultures with approaches such as the forest schools (Elliott & Krusekopf, 2018). In Scandinavia, the focus is often on play in nature (Hammer, 2012, Hammer & He, 2016; Heggen, 2015, 2016; Sageidet, 2014). There seems to be an understanding that such play in nature provides opportunities for children to connect with nature in ways that will stay with them and affect their relationship with nature and nature conservation later in life (Carson, 1956; Chawla, 2006; Green et al., 2016). Studying children's perception of nature, Hallås and Heggen (2018) interviewed children who regularly take part in pedagogical activities in nature, either as relatively free play in early childhood or in more structured approaches in first grade at school. In groups, the children were asked open questions, such as: Can you tell us about the nature here? In the answers, the children described the value of nature in itself, a more ecocentric view on nature than what is implied both in earlier research (Kahn, 2002) and in the concept of sustainability (Brundtland, 1987).

Education in nature includes learning about nature, reflecting the qualification aspect in accordance with Biesta's terms. There are, however, cultural differences regarding learning about nature in ECE. Hammer and He (2016) showed in their comparative study that while ECE teachers in China provide opportunities for children to experience and learn science in structured activities, such as experiments, Norwegian ECE teachers argue for learning through free play in nature with a focus on the innocent childhood and outdoor life ("friluftsliv"). A poster in an international ECE institution in Norway asked in its headline: "How may children learn anything when they are

outside all day?" Several notices about a variety of learning opportunities in nature, for example, in social and scientific learning, followed. This shows how cultural differences—such as emphasizing different learning contexts and methods for achieving sustainability—become evident when cultures meet and an overlap between ecological and social/cultural sustainability is depicted.

Teacher-led experiences, such as those described from China (Hammer & He, 2019), seem to form a contradiction to the Nordic approach to play. Despite the contradiction, it is hardly contested that there is a range of learning opportunities in both teacher-led activities and in free play. Considering Biesta's concepts, both approaches can serve as qualification and socialization. In addition, both in structural learning activities and in play, children might come forward with something new or unexpected that could challenge our settled ways of thinking and serve for qualitative changes to meet unsustainability. A challenge is to handle the beautiful risk of education and to give room for emerging conflicts as outlined in the RDA and for children's subjectivity as described by Biesta.

Outdoor learning in nature in early childhood in Norway is often expected to be curiosity-driven and based on children's interests (Heggen & Lynngård, in press). While research shows that play in nature may affect children's relationship with nature, the possible learning outcomes of these situations are debated (Ejbye-Ernst, 2011; Lynngård, 2015). As such, the dimension of qualification might be left out. However, there is a contemporary trend involving nature as a co-learner, for example, in eco-cultural conversations (Dickinson, 2016) or through the influence of place: learning in the world rather than about the world (Sverdrup & Myrstad, 2019). With an emphasis on the value of childhood and play in nature, it might be postulated that such situations imply a higher degree of autonomy for the children, suggesting a larger contribution from the children, which we frame within the dimension of good governance.

Arguing to view children as eco-citizens, Heggen et al. (2019) suggest implementing pedagogical activities around farming, gathering of wild food, or children's literature. Letting children grow their own food may provide insights into complex ecological systems. Composting organic waste and using the soil to grow new vegetables may lead to an insight into where food comes from as well as provide an emerging understanding of the carbon cycle. Heggen et al. (2019) argue that through emancipatory methods in farming activities, children may see an increased value in the vegetables (economic sustainability); the joint work for a common good implies cooperative traits necessary in social sustainability; and they are gaining ecological competence. If we view farming as economically beneficial, we trace an overlap among the ecological, social/cultural, and economic dimensions. By following the children's curiosity and reflections in such activities, Krempig and Utsi (2017) have shown that children can contribute to the joint learning of both adults and children, framing such approaches within the political dimension. Viewing gardening approaches as valuable nature experiences in early childhood implies that these may occur in urban gardening in differing cultural contexts (Sageidet et al., 2018). Thus, we can trace

an overlap among the ecological and social/cultural dimensions. Considering Biesta's concepts, the gardening activities in nature often emerge as qualification and socialization for future citizens, although traces of subjectification are facilitated by the way the activities are performed and organized that make room for qualitative changes and more equity among teachers' and children's contributions. Therefore, these activities could be seen to represent the overlapping area in Figure 1.

Social and cultural sustainability

Social and cultural sustainability points to a development that ensures safety, social rights, and good living conditions—equal rights for all. These concern class, gender, ethnicity, religion, and culture. Social sustainability has also been defined as "a life-promoting state within communities, and a process within communities that can achieve this condition" (McKenzie, 2004, p. 12). In the context of ECE, one might see social/cultural sustainability when creating surroundings that include and stimulate positive interactions, such as trying to promote a sense of community and a feeling of belonging to the community where we live. In short, it is feeling safe and attached to the local area. This holds common references within the group of children, but works as well for contact across groups and generations (Horrigmo, 2014; Løvlie, 2007b; Mannion & Adey, 2011).

ECEs most often aim to contribute to children's interest in civil society and to facilitate attitudes that can strengthen their social capital and create confidence in themselves as participants in community life and build trust in the communities they are part of (Horrigmo, 2014). Another task is social equalization: the kindergarten should help to level out social differences. Social capital can be viewed as a starting point for participation in civil society (or community life or voluntary participation—or whatever we call these kinds of ties between actors in a local community). Putnam (2001, 2007) refers to social networks and the standards of mutual dependence and trust. Social capital in our sense may be about knowing the place where we are, and what qualities and resources exist in the local environment around the ECE institution. Granovetter (1977) points out the cohesive power of "weak ties," meaning that it is not only close relations that develop our trust in our surroundings. Social capital exists in relationships and it is both an individual advantage and a collective benefit. According to Biesta, the aim of increasing social capital seems to be similar to solidarity, equity, and sustainability through socialization.

ECE teachers can facilitate different social relationships among parents through joint activities, by inviting them into the kindergarten, and by giving them more access to the staff's taken-for-granted knowledge about the kindergarten and what is going on there. It might help to strengthen the social capital of newly arrived families in the form of social affiliation, membership, relations, and networks. This can be linked to the concept of community trust (Glanville & Paxton, 2007). This kind of local place-based trust is closely connected to problem-solving in the local

community. In ECE institutions, locally based everyday problems that are relevant to young children arise. Problem-solving often emerges from contradictions or conflicts and can therefore be close to the RDA and might serve as ways to facilitate qualitative changes in ECE cultures.

The above ways to educate, involving social and cultural sustainability form a contrast to solidarity campaigns that are common in many ECE practices. The common focus on the need for the "rich" children to be kind and give to "the poor and needy children" in other areas of the world imposes a feeling of "us" and "the others" (Børhaug & Bakken, 2009; Tabulawa, 2003). Tabulawa (2003) also poses a critique to the compound of international aid agencies, learner-centered pedagogy, and political democratization. He argues that learner-centered pedagogy is a political artifact, an ideology, a worldview about how society should be organized. Because it is inherently ideological, justification of the pedagogy on educational grounds is questionable, he claims. The basic premise is that learner-centered pedagogy given by aid agencies is used to promote democracy, an approach to democracy that forms a necessary condition for the development of a free-market economy. The hidden agenda, Tabulawa argues, is to alter the "modes of thought" and practices of those in the periphery states so that they look at reality in the same way(s) as those in the core states. It thus promotes westernization in the form of individualist and capitalistic ideology, he states. Considering Biesta's concepts, these campaigns are embedded in education and can be understood as qualification and socialization by learning how to participate in the ideological, capitalistic society at the same time as establishing distinguishable borders between the ones that are a part of the system and the outsiders—"us" and "the others." Here, there is limited room for subjectification or new ways of thinking.

Further, local- and cultural-based problems—and thereby relevant for children—are often left out of these campaigns. Fernando (2001) problematizes how the UN Convention on the Rights of the Child (CRC) and work for children's rights are not very sensitive to social and cultural diversity. Fernando (2001) claims that isolating children's rights issues from issues of class, race, and gender has become a convenient means of avoiding direct engagement with the political and economic realities of the emerging global economy—and thereby putting the economic dimension at stake. He refers to how discussions on the study of power relations in the current children's rights discourse are structured in binary terms, such as the powerful versus the powerless. According to Fernando (2001), this way of homogenizing and systemizing the experiences of children in different contexts, in turn, leads to the legitimization of Eurocentric/universalistic policy interventions. Nongovernmental aid organizations (NGOs) are dependent on private donors as well as structures and policies—and their work partly provides ideological legitimacy for the state to reduce subsidies for welfare and social services, such as health and education. NGO activities do not compensate for the loss of provisions for children due to the dismantling of the welfare state. "This raises the issue as to whether the 'NGOization' of children's rights is in fact providing

legitimacy for the neoliberal ideology of the state that underpins the reduction of state welfare provisions for children" (Fernando, 2001, p. 14). In addition, children might lose their jobs due to the closure of sweatshops and simply end up worse off, because there is a difference between advocating for an awareness of and improving the rights of children—striving to create an alternative social and economic order in which such violations would not exist. A contradiction between an understanding of good governance as an individual fulfillment of legal rights, social/cultural sustainability, and economic sustainability emerges. Even if Article 32 in the CRC states that children have the right to be protected from child labor, it does not necessarily benefit these children to be "exempt" from work. Many children have neither work income, welfare benefits, nor access to nature as a provider for food, and thus have few alternative ways of coping. The cultural part of education that Biesta emphasizes is not evident, and therefore these aid campaigns seem closer to qualification, socialization, and colonization than to qualitative changes. Despite the good intentions, they do not facilitate more equity. Referring to Figure 1, there seems to be irreconcilable conflicts among the four dimensions in the overlapping area.

Economic sustainability

Our understanding of ECE for economic sustainability consists of three topics that partly overlap: *economy*, *consumption*, and *value*, which will naturally vary from one country to another, and within a country, depending on the economic situation of the children's families and society. While ECE in poor areas might concentrate on developing capacities for children and their families to fight poverty, the focus might be on reducing consumption in wealthy areas.

An understanding of economy, in terms of money and its value, has been considered part of education for economic sustainability, wherein play with make-believe money is common (Folque & Oliveira, 2016; Kultti et al., 2016; Mogharreban & Green, 2016). In some of these cases, children were invited to make decisions regarding what to buy, or they sold goods or food, which they or their families had produced. In addition, a focus on restricting water, electricity, and paper consumption was presented as education for economic and ecological sustainability (Siraj-Blatchford et al., 2016). The educational aims in these cases were to learn about monetary value and that choices need to be made when access to money is limited. By allowing children to be involved in actual purchasing, but also in play and games that involve mimicking purchasing, children learn and experience the value of money, and that money is not an endless resource, and that choices need to be made. The children become familiar with purchasing and may be introduced to capitalism through discussions on why there are poor and rich countries, or poor and rich people. In Biesta's terms, the children become acquainted with established practice—a form of qualification—but such activities can also be seen as socialization, depending on whether the practice is seen as established and which practice is in mind.

Another topic linked to economics is to bring children's attention to the uneven distribution of wealth (Santone, 2013), which is a topic inside the overlap between the social/cultural dimension and the economic dimension in Figure 1. A project with children aged 6 and 7 in Australia showed that even young children may adopt society's stereotypes and prejudices about the poor (Hammond et al., 2015). Yet, facilitating productive discussions with the children revealed they were capable of theorizing about poverty and social justice, reasoning and reflecting on solutions to a complex and, for them, a novel problem. Their way of facilitating productive discussions points to the dimension of good governance that makes room for subjectification, as Biesta terms it, since the children made unexpected reasoning and solutions.

Some kindergartens in wealthy countries or wealthy neighborhoods support children or kindergartens in poor countries. The idea is to socialize children into solidarity with poor children. In principle, this is considered a good thing, but concerns about how poor people and children are presented, for instance, as pitiful and lacking skills, have been raised (Børhaug & Bakken, 2009). On the contrary, Wood (2013) suggests that bringing attention to lives lived generations ago or lives lived with much less in the way of resources can give hope to people, showing them that happy lives are indeed possible without the immense wealth that too many people are used to. This means that people who are poor but who enjoy healthy and rewarding lives can be a resource in achieving change and an adjustment to a sustainable future. Solidarity and learning ways of living with fewer resources overlaps well with the dimension of social/cultural sustainability and ecological sustainability. In order to become an agent of change and disturb our understanding of how our society should be, children can be exposed to ideas that show that things may work differently, such as seeing that other ways of living can be rewarding and bring hope, and that there are many activities that are fun and leave no ecological footprint. Presenting such ideas can make room for even more ideas for qualitative changes, in line with Biesta's notion of subjectification.

Closely linked to the topic of economics is that of consumption, our second topic in education for economic sustainability. Consumption is a threat to ecological sustainability, because of contamination issues and the overexploitation of natural resources. In addition, it identifies an equity problem, which overlaps with social sustainability. In ECE for economic sustainability, we suggest that consumption be addressed as described above: exploring what a rewarding life might be in the past or in places with fewer resources, and where consumption is significantly lower. Another approach is to make children reflect on the difference between what they *need* and what they *want* to be happy and healthy (Santone, 2013). Other ways of addressing consumption are through saving, sharing, reusing, and recycling, and through repairing broken things, whereby children can, for instance, learn to differentiate in recycling and see that waste can go back into production (Siraj-Blatchford et al., 2016). We argue that children can also be involved in reflecting on the amount of waste produced and what is disposed in the kindergarten, at home, and in their

hometown, associating this with issues of consumption. Excessive packaging and low-quality products are two examples of what can be explored. Children can be introduced to alternatives to consumption, such as repairing, reusing, and sharing goods (Kultti et al., 2016). We place these examples in the overlapping area between the economic and the ecological dimensions in Figure 1.

Value is the third key topic in our understanding of ECE for economic sustainability: to cherish or value things, craftsmanship, and activities may imply a low or even no ecological footprint. Craftsmanship has been suggested as one way to counteract a throwaway mentality, by letting children experience how much effort it takes to create a product (Siraj-Blatchford et al., 2016). For instance, a kindergarten let the children craft their own sheath knives to focus on utility value rather than economic value (Heggen, 2016), which indicates an overlap between the economic and the social/cultural dimensions. The social/cultural dimension is represented by the heritage of culturally developed craftsmanship. Children have also been motivated to collect "treasures," such as beautiful rocks and nice sticks found during walks (Heggen, 2016). In Norway, where water is available and abundant, children love playing with water, which has been associated with ECE for economic sustainability, and represents activities that touch upon all four dimensions for sustainability (Grindheim et al., in press).

The topic of the economy includes an early understanding of the economy and monetary value, representing the economic dimension. Equally important is the aspect of equity in terms of standard of living and fairness, both locally and globally, which represents good governance. Consumption focuses first of all on education on how to reduce consumption through sharing, reusing, repairing, and recycling, but also on activities that encourage respect for produced objects and the need to take care of these objects and thereby the social/cultural dimension is evident. The third topic, value, is about emphasizing the utility value rather than the economic value, and it promotes activities that make children happy without making a significant ecological footprint, and thereby the ecological dimension is depicted. We can see that these activities represent the overlapping area in Figure 1.

Summing up overlaps and contradictions

There seems to be consensus that education can contribute to sustainability. We also depict an agreement that distribution of natural and cultural resources is vitally important for engagement for sustainability. In addition, the economy and belonging in a culture and a society emerges as important for engagement with sustainability. Approaching earlier research about sustainability from these four dimensions depicts a variety of relevant activities, such as playing in nature, learning about nature, gardening, composting, and facilitating positive relations and social networks among children and ECE, among parents and ECE, and among places and humans to establish locally based trust, solidarity campaigns, play with make-believe money, bringing

attention to lives lived generations ago with fewer resources, learning craftsmanship, saving, sharing, reusing, and recycling. From this, we suggest that finding activities to educate for sustainability that is of relevance for children is possible and can meet the demand of overlapping the ecological, social/cultural, and economic dimensions. A challenge arises in that the variety of activities can both reproduce problems and make room for new solutions, depending on how they are governed in the locally based everyday life in ECE institutions. It is also of interest that overlaps are easy to spot, but contradictions mostly emerge from the research within the social/cultural dimension—perhaps because conflicts are underplayed. Emphasizing the need for change, we suggest also taking good local governance from an RDA perspective and Biesta's concepts into the discussion of how to promote qualitative changes.

How are all four dimensions relevant?

When facing the challenges where sustainable activities that involve ecology, economy, and social science can both reproduce problems and make room for new solutions, the question of how to educate toward increased sustainability is at stake (Sterling, 2010; Wals, 2012). Several researchers argue for didactical practices that move from transmissive toward transformative learning (Percy-Smith & Burns, 2013; Sterling, 2010) and an emancipatory approach. They argue that it is insufficient to simply treat ESD as another body of knowledge for young people to learn; instead, there needs to be a more transformative approach to learning about sustainability that develops in young people a culture and consciousness for critical learning and action, as active agents of change for increased sustainability. Thus, we are touching the dimension of good governance in Figure 1.

Despite the emancipatory approach, most strategies seem, as Håkansson et al. (2019) state, to underplay conflicts and seek consensus, and thereby the aspect of subjectification is underplayed. In seeking to make sense of conflicts as opportunities for students to act as agents of change, the authors are concerned with how young people can be involved through more than just articulating a view. Percy-Smith and Burns (2013) discuss the importance of spaces for initiative and action, and a culture of seeing and supporting young people as active and competent citizens are necessary conditions for young people to participate as agents of change (Davis & Elliot, 2014). In Biesta's terms, we may call this demand for agents of change as a demand for room for subjectification.

Despite some progress, the goal of transformative learning and emancipatory practice has been difficult to achieve in practice. In part, this appears to be the result of an emphasis on knowledge acquisition for the future rather than learning what is usable and useful in the here-and-now. A review of research finds that although the aim is to improve children's opportunities to act as agents of change (Wals, 2012), the practices are often on teaching the children facts about the environment (Hedefalk et al., 2015). Learning facts would be a reasonable basis if knowledge

changes attitudes and leads to actions; there is, however, little evidence for this causality (Kollmuss & Agyeman, 2002). This can be explained from the problem of identifying purpose or direction in transformative and emancipatory perspectives.

Sterling (2010) draws on mutually dependent aspects from instrumental and intrinsic perspectives, as well as from resilience and social learning theory. He underlines inter- and transdisciplinarity, an emphasis on real-life problems, and the fluid boundaries between institution and community. This seems to be similar to what Wals (2012) denotes as postnormal environmental education, which is inspired by the philosophy of postnormal science. The overall idea of postnormal science is that environmental problems are often associated with complexity, uncertainty, and contradicting views, so that a best solution does not necessarily exist. This implies that policy-making should draw on both experts and a democratic approach involving citizens (Funtowicz & Ravetz, 1993). While postnormal science deals with the interface between science and decision-making, Hauge and Barwell (2017) argue that education can prepare students for playing the citizen role in postnormal science. They emphasize that working with societal issues with high stakes and contradictory views is essential for this aim, whereby students are allowed to disagree. In addition, they call for multidisciplinary approaches in education, although their point of departure was mathematics education. Similarly, Wals (2012) calls for a postnormal environmental education that facilitates transdisciplinary and democratic thinking on environmental problems, whereby children learn to cope with disagreements respectfully. He concludes that sustainable development requires learning that leads to "a 'new' kind of thinking, alternative values, and co-created, creative solutions, co-owned by more reflexive citizens in a more reflexive and resilient society" (pp. 637–638). This seems to be similar to Biesta's arguments for making room for subjectification in ECE education. Our understanding of ECE for sustainability, wherein the dimension of good governance is central for teaching and learning issues of sustainability, is thereby in line with a postnormal environmental education and with RDA, which both emphasize the role of conflicts and that disagreements should be allowed.

The perspective of a postnormal environmental education is related to science education and not frequently referred to when approaching sustainability in ECE. On the other hand, there is educational research approaching young children's resistance as ways of performing their citizenship as agents in their own and in other people's lives (Grindheim, 2014; James, 2011). These similarities illustrate a demand across disciplines for education and education research related to children as agents of change, and they also suggest a need for developing transdisciplinary perspectives in education for sustainability. These demands call for several dimensions that include many disciplines to cover the ecological, economic, and social/cultural dimensions. In addition, multiple stakeholders, including young children, emerge as relevant contributors for how to meet the contemporary challenges of sustainability. The demand to meet the contemporary challenges of

sustainability requires educational cultures that emphasize more than qualification and socialization. Agents of change as subjectification are to be facilitated and welcomed.

Closing remarks

Taking departure from Biesta, we explore the challenges of sustainability and education for sustainability. The traced challenges point to passing on cultural tools and knowledge to the next generation (qualification) at the same time as facing an unknown future and contemporary problems. Education within all dimensions points to the need to emphasize local belonging and global challenges, teachers and children as agents of change (subjectification), and eco-centeredness. Interdisciplinary curricula and pedagogical practices emerge as important. Looking into research framed by the dimensions in Figure 1, both ways of governing activities and the content of activities point to possibilities of incorporating new ways to solve problems.

We conclude that the multidimensional and contradictory challenges of education for sustainability in ECE call for an overlap of all four dimensions of sustainability. This implies pedagogical practices emphasizing real-life problems that illustrate the ecological, economic, and social/culture dimensions as well as the dimension of good governance. To meet the paradox of education, good governance calls for didactical practices that make room for unexpected contributions from children who are not yet socialized into established ways of solving contemporary sustainable challenges. Contradictions and conflicts are to be welcomed and dealt with instead of being underplayed. We welcome research that elaborates and discusses such practices, meeting both the challenge to educate for an unknown future and to face everyday problems that are also considered global challenges, such as inequity, lack of solidarity, and unsustainability, at the same time as not curbing hope and a cheerful childhood.

Sustainability issues are often associated with risk because there are no quick fixes to solve problems, which can cause unease and a feeling of hopelessness. We recognize that careful consideration is necessary, showing that small steps matter, to ensure hope for the future by making room for children to be agents of change in relevant activities in their everyday life without handing over the failures from earlier generations. Taking departure from RDA as good governance, our main contributions are that conflicts among children as well as among children and teachers are to be welcomed to meet the challenges of sustainability. We identify the overlapping area in the middle of Figure 1 when real-life activities relate to nature, society/culture, economy, and good governance. Ways of facilitating these real-life activities become highly relevant in making room for agents of change through subjectification. This brings hope that the overlapping portions of the circles can be widened.

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Children as eco-citizens?

Abstract

Education for sustainability in early childhood tends to focus on practices and advocacy, rather than on the aims of this education. We suggest that the aim should be to consider children as being and becoming eco-citizens. This suggestion is built on an exploration of children as eco-citizens. With theories concerning child-sized citizenship we suggest a description of children and adults as being and becoming eco-citizen. We explore this through the fields of nature connection and science and children's curiosity. We find that environmentally friendly practices as gardening and harvesting wild food show how children's eco-citizenship is realizable. We support this additionally by references to how children's literature, seeing how children depicted as eco-citizens can support the notion of children as eco-citizens. Through these analyses, we conclude that children should be viewed as being and becoming eco-citizens.

Children are the stakeholders and creators of the future and their role in the quest towards a more sustainable future is of particular importance (e.g. Samuelsson, 2011; Davis & Elliott, 2014; Siraj-Blatchford, Mogharreban & Park, 2016). Most of the research on early childhood education for sustainability (ECEfS) lies within interpretative research of practices or advocacy, on how or why we should work with education for sustainability (EfS) in early childhood education (ECE) (Somerville & Williams, 2015). In order to answer how ECEfS should be practiced, it is important to look at the aim of this education. What do we want to achieve with ECEfS?

The aim to establish children's connection with nature is still one of the large discourses in ECEfS (Somerville & Williams, 2015). However, ECEfS, and the concept of sustainability itself, could be criticised for its anthropocentric perspective. It has been argued that, in order to achieve a change towards a more sustainable and equal community, our view of nature should be eco-centric rather than anthropocentric (Vetlesen, 2015). An eco-centric educational approach emphasize the goal to give children an emerging understanding of humans as parts of the diverse life on Earth, and that solidarity and care for the more-than-human world is necessary (Næss, 1976; Taylor & Pacini-Ketchabaw, 2015; Weldemariam, 2017). This should influence the way we work with environmental issues in ECE (Dickinson, 2013).

A change from an anthropocentric to an eco-centric view of nature is harmonizing with a change from an adult centric view of children to a more child centric understanding of children. This transition depicts children as important contributors in their everyday lives (James, 2009; Robson, Bell & Klocker, 2007), also when being children – not only as becoming adults. Children that are not yet socialised into an established understanding of the relationship between nature and humans may challenge established anthropocentric solutions for EfS. Using the term eco-citizens as it comes to children, acknowledges that children have experiences only they know, that are of relevance for the society.

We suggest an ECEfS grounded on multidimensional perspectives of environmental challenges with an aim to view children as competent agents in their own lives. In this context, we elaborate the concept of children as eco-citizens and suggest that ECEfS aims to realize children as both being and becoming eco-citizens.

METHODOLOGY

This theoretical study aims to explore the concept of children as being and becoming eco-citizens by help of interdisciplinary inquiry (Derry, Schunn & Gernsbacher, 2014). Interdisciplinary inquiry integrates concepts, philosophies and methodologies from different fields of knowledge. It crosses disciplines and engages participants in collaborative dialogue, which both transforms the understanding of individual participants, and produces new knowledge and new solutions (Klein, 2014).

In our work, we outline an understanding of the concepts child sized citizenship and child sized eco-citizenship. Then we move on to explore the relationships between child-sized eco-citizenship and relevant discourses of early childhood; children's connection with nature and science and children's curiosity. With these in mind, we explore the potential for a focus on eco-citizenship in activities in Norwegian ECE related to gardening and harvesting activities. We also investigate how children's literature may contribute to position and empower children as eco-citizens.

Based on the outline on child sized citizenship and eco-citizenship, and in light of contrasting and complementary fields, this study explore the following research question: How may perspectives of nature and science, curiosity, gardening, harvesting, and children's literature within ECEfS contribute to realize children as active agents, as both being and becoming eco-citizens?

CHILD SIZED CITIZENSHIP AND ECO-CITIZENSHIP

Citizenship is a complex, disputed and theoretical concept especially within political, pedagogical and philosophical theory. In this article, we are in line with the contemporary discussion that relate the concept citizenship to children's belonging, participation and cooperation in a group, a community or a society (Bjerke, 2012). Children's citizenship is relevant in educational contexts and practices like ECE (Barr, 2005; Grindheim, 2015; Kjørholt, 2008; UNESCO, 2014). The English concept 'citizenship' refers to both citizenship as status and citizenship as role (Ødegaard, 2012). According to children's legal rights they have status as citizens (UNCRC, 1989). They also have a role as citizens in the society, where they attend as public persons and not only as a part of their family, as in their attendance in the public sphere like ECE.

Children are however not entitled to participate in the society by voting at official elections. Rather, the way they perform their rights are within the constituted conditions to participate, close to 'citizenship as role' or as 'citizenship as practice' (Lister, 2003). Children having status and role as citizens form a contrast to traditional theories of citizenship where children were seen as citizens '*in potentia*' (Marshall, 1950). Therefore, children's formal rights challenge the traditional understanding of democratic citizens, which is based on rationality, autonomy and the right to vote (Cockburn, 1998).

Educational contexts often emphasise children's learning from the perspective of them *becoming* citizens, but ECE centres are not just places for future citizens to develop. They are places where children stay and live, as children. Research has delineated an adult-centred understanding of where and how children can contribute and where and how their legal rights are exercised, which may not accord with how children participate, inhabit, negotiate and challenge the established community (Cockburn, 1998; James, 2011; Liebel, 2008; Seland, 2009). In order to welcome children's contribution to reach the aims of EfS, it is of interest to explore their 'citizenship as practice' (Lister, 2008), the way children exercise their rights within the established conditions in ECE. Using the concept citizenship

in accordance with children, legitimizes children as different citizens and as important contributors with unique perspectives that can be of interest when meeting contemporary challenges as EfS.

Valuing children's perspectives and contributions are in line with the emphasis on children as agents of change achieved in transactions (Caiman & Lundegård, 2014). It also helps to curb the pastoral power that children often are met with when education for sustainability is limited to reconstruct knowledge from the grown-up generation. Our concern is that the problems that already exist are reconstructed by knitting together personal guilt with global threats in detailed individual activities for rescuing humans and planet as suggested by Ideland and Malmberg (2015).

Children are not adults, and are hence 'different' citizens (Lister, 2008), living a 'child-sized' citizenship (Jans, 2004, p.38). They are not fully responsible of their own actions nor at all responsible of contemporary problems. Children are more dependent on caretakers than adults are, their immaturity is biological, they have less experience and play is a more common way of interacting among children than among adults (Jans, 2004). Although children should learn to see the consequences of their actions (e.g. Ministry of Education and Research, 2005), accepting children as different citizens include understanding that it is the responsibility of adults to meet children's contributions and to decide what to take into consideration. Adults are also responsible to share earlier generations' experiences and cultural tools.

The shift from an adult centred view of citizenship opens up for recognizing both differences and similarities between children and adults. It also opens up for different forms of participation that can contribute to meet the problems of sustainability, in both formal and informal settings (Biesta, Lawy & Kelly, 2009; Cockburn, 1998), and in day-to-day activities that links local and global understanding, including informal settings like play (Grindheim, 2017). In play, children create an imaginative space where their experiences and problems are investigated and where they produce something new (Caiman & Lundegård, 2014). These may be valuable ways of meeting the future problems of sustainability, problems that calls for new solutions.

In education, there are value based aims for what we want for the next generation. Both children and adults change from influences by their surroundings, personal interests and urge to understand. In a rapidly changing world, we all have to adopt to new challenges and new technology, and are hence being and becoming citizens both as children and as adults.

From child sized citizenship to child sized eco-citizenship

In Nordic ECE children can practice their citizenship through daily activities, often as play in nature (Aasen, Grindheim & Waters, 2009). How this play influence children is dependent on how children, and we, think of nature (Dickinson, 2013). Viewing nature as a source for services or commodities, an anthropocentric view of nature, may increase the problems, while viewing nature as equal and valuable in itself, an eco-centric view of nature, may be necessary in EfS (Vetlesen, 2015; Goga, Guanio-Uluru, Hallås & Nyrnes, 2018). This brings us to child sized eco-citizenship. Eco-citizenship seems to include a stronger inclusion of the more-than-human parts of the world's ecosystem (Dean, 2001; Barr, 2005).

The idea of global citizenship has emerged along with the ecological concerns for our planet, and international guiding documents like *Our common future* (WCED, 1987). These documents state that global citizenship education depend on a society open to universal values, with transformative learning and through the empowerment of youth (Barr, 2005; UNESCO, 2014). The UN decade for education for sustainable development made 'Global Citizenship Education' as the framing paradigm (UNESCO, 2014). Global citizenship is a holistic approach with focus on open, democratic and respectful communication, on value formation and on critical thinking. Yet, UNESCO (2014) acknowledges that a term like 'planetary citizenship' might be a better focus on the global community's responsibility to preserve the planet Earth.

We suggest the term eco-citizen, a term without finalized definitions, or clarified connections to small children, although the presented documents may be understood as giving also children a role as being eco-citizens. Eco-citizens practice their citizenship on planet earth, participating in the ecological system of the planet, together with the more-than-human world (UNEP, 1975; Næss, 1976; Newby, 2016; van Steenberger, 1994; Dean, 2001; UNESCO, 2015). Eco-citizens have a common and individual responsibility for the planet, all its inhabitants, and future generations. Both adult-sized and child-sized eco-citizens have additional rights that provide for the protection of the individual against the effects of pollution and environmental degradation. We understand children as eco-citizens practicing a child sized eco-citizenship by their involvement in their local community and their local nature.

NATURE CONNECTION AND SCIENCE

Working with EfS with young children is often seen as controversial, and the importance of the innocent childhood is often emphasized (Wals, 2012). The Nordic countries have a long tradition of using nature and outdoor areas as a resource for the work of social competence, sustainable development, and belonging (Braute & Bang, 1994; Aasen, Grindheim & Waters, 2009; Caiman, 2015; Sageidet, 2015; Heggen, 2016). The innocent quality of nature encounters may meet the demands to combine EfS with the concept of an innocent childhood. In models of environmental identity development, children's environmental development is depicted as a development from the connection with nature, through experiences and knowledge to identification and responsibility for the environment (Blanchet-Cohen, 2008; Green, Kalvaitis & Worster, 2016; Langholm, Hilmo, Holter, Lea & Synnes, 2017). Experiences in nature are explicitly considered valuable in bridging the human-nature divide, and Dickinson (2016) suggests that nature and children can overcome this dichotomy through eco-cultural conversations where nature is given an active voice with a focus on the presence of nature, as a dead mice, a climbing squirrel, etc,. It has also been argued that special places in nature where children have positive experiences of exploratory play, hike, camping or fishing, are considered of great importance for their ecological engagement as adults (Chawla, 2006; 2007; Vadala, Bixler & James, 2007). Interrelationships in nature that are experienced and explored locally in ECE apply to global systems, suggesting a potential for the formation of children as eco-citizens. Pre-school children familiar with play in nature can view nature in both anthropocentric and eco-centric perspectives (Hallås & Heggen, 2018). However, many children do not have access to un-organized nature, and rapid urbanization result in nature related experiences to occur in urban areas for a majority of the world's children (Sageidet, Almeida & Dunkley, 2018).

Although nature experiences, in more or less wild areas, may provide children with opportunities, skills and perceptions to develop as eco-citizens, nature experiences in themselves are not enough. The influence of nature experiences is dependent on how children view nature (Dickinson, 2013). Through interaction with competent adults, children may learn about natural phenomena and complex relationships in nature (e.g. Fleer, 2015; Hatch, 2010). Other studies also suggest that adult role models showing the value of the natural world through their own appreciative attention are important for developing ecological attitudes (Chawla, 2007).

Recognising a world that is becoming increasingly complex, Elmose and Roth (2005) underline the importance of science education as a contribution to children's ability to live responsible. Inquiry based outdoor activities (Sageidet, 2012; Sundberg & Ottander, 2014) acknowledge mutual learning between children and adults, and children's attention may be drawn to interrelations and analogues between the physical world and ecological relations, the human body and social relations in the environment (Aasen, 2006). The children may also draw the adult's attention towards objects or issues they overlook, and contribute to the adults becoming eco-citizens (Utsi, Bøe & Krempig, 2019). ECE teachers can build on the eco-citizenship concept by continuously linking concrete local examples and activities to global or more abstract interrelations.

CHILDREN'S CURIOSITY

Recognizing, supporting and helping children's curiosity is about the child's right to participate as a child, being an eco-citizen and developing themselves as becoming eco-citizens. Curiosity is valued as an important and desirable attribute of EfS (Kasin, Haugen, Langholm, Heggen & Syed, 2019), and children´s opportunity to wonder was underlined already when children were introduced into environmental citizenship (Carson, 1965/1998). Natural science in Norwegian ECE is often based on children's curiosity. It is expected that children will begin to develop knowledge and understandings about processes and contexts in nature through their curiosity (Norwegian Directorate for Education and Training, 2017).

Children's curiosity and involvement are correlated , and the more curious a child is, the longer the child is engaged in a situation (Jirout & Klahr, 2012; Gruber, Gelman &Ranganath , 2014). Ranganath, 2014). There are also reasons to believe that engagement and curiosity lead to more knowledge and insight, leading to more curiosity. Motivation and engagement also increase when children develop knowledge (Patrick & Mantzicopoulos, 2015). There is hence a close link between curiosity, motivation and engagement.

No exact definition of curiosity exists (Jirout & Klahr, 2012) and there is little research on the nature of curiosity (Gruber, Gelman & Ranghanath, 2014). Humans are however assumed to be born curious and curiosity is considered a positive feature in most contexts. Some children may however be more naturally curious than others (Cohen, Schoene-Bake, Elger & Weber, 2009; Gruber, Gelman & Ranganath, 2014). While there are no criteria for measuring curiosity, it is often thought to be verified by questioning; the more questions, the more curious a child is perceived (Jirout & Klahr, 2012; Patrick & Mantzicopoulos, 2015). Curiosity is also described as something that leads to exploratory behaviour as touching or collecting (Jirout & Klahr, 2012). These less perceptible signs of curiosity may require specific attention by pre-school teachers.

ECE teachers play an important role in conditioning children's curiosity, explorative behaviour and understanding of nature (Caiman & Lundegård, 2014). Research on how to influence children's curiosity is however scarce (Cohen et al., 2009). It is believed that children who receive many impulses from the environment may expand their curiosity (Cohen et al., 2009). Also, when children and adults have a common commitment and share their thoughts, the conversations last longer (Siraj-Blatchford, 2009). Such conversations can lead to increased involvement and learning outcomes, but knowledge of how to do this is needed (Gustavson & Pramling, 2014). Studies have shown that pre-school teachers too seldom support children's scientific thinking or help them to see relationships in nature (e.g. Ejbye-Ernst, 2012). Other reports that children rarely get scientific answers to their questions in pre-school (Thulin, 2011). This may lead to the children ceasing to ask questions, thus being perceived as less curious. Lindholm (2018) suggest that children's capaicity for more philosophical wonder should be stimulated in early childhood to increase curiosity later in life.

Curiosity and exploration are important aspects in envisioning a more sustainable future (Corcoran, Weakland & Wals, 2017). As we have seen, curiosity, engagement and motivation are linked and the learner's engagement and motivation are crucial for eco-citizens to develop their own environmental philosophy (Næss & Jickling, 2000). Children's curiosity lifts themes children are engaged in, sustaining and stimulating curiosity in ECE can be seen as an element in democratic participation (Menning, 2017). To support children as eco-citizens, we need a better understanding of how curiosity can be recognized, expressed and supported and how children and adults may nurture their mutual contributions to facilitate children as being and becoming eco-citizens.

GARDENING AND HARVEST ACTIVITIES

As the global population urbanizes, fewer children have opportunities to learn about the origins of food (Sageidet et al., 2018). Modern citizens can learn and experience how sustainable food can be

grown or harvested locally to discover the interrelationships of nature (UNCTAD, 2013), and thus embody the notion of being and becoming eco-citizens regarding food choices (Krempig & Utsi, 2017; Bergan, 2019). We will next explore how garden and harvesting activities can be of value in early childhood and elaborate how this can contribute to eco-citizenship.

Gardening

School gardening has a long tradition as an outdoor activity with the aim to educate children about food, nature and the environment (Blair, 2009; Ozer, 2007). The word "kindergarten" originates from Friedrich Fröbel (Herrington, 1998), and recognizes the importance of play and garden activities in learning. The garden represents a metaphor for children, where the teacher/gardener supports the children's formative development and growth (Herrington, 1998). What children see, practice and learn in early childhood, may stay with them as values and habits through their whole life.

Gardening is a recurrent and habitual practice in which the teachers facilitate and are role-models of eco-citizenship (Bergan, 2019). For children to be and become eco-citizens we need holistic perspectives, knowledge and skills that enable them to engage in sustainable practices. Organic gardening is a direct and local action that influences the ecological, economic and socio-cultural dimension of sustainability. Organic methods may establish a close encounter with sustainable practices and promote diversity of life in the soil.

The increasing number of websites facilitating educational gardening and urban community gardening (e.g. BørnsByhaver, 2015; FarmToPreschool, 2011; Geitmyra, 2010) may suggest that garden-projects in ECE are quite prevalent. It has also been suggested that children in urban areas may get access to nature experiences in small roadside or window-sill gardens (Sageidet et al., 2018). When children play and interact in a garden it often brings a feeling of happiness, and new discoveries may support children's curiosity and questions (Midden & Chambers, 2000; Green & Duhn, 2015). Through gardening, children may also explore the economic and socio-cultural aspects of sustainability; selling their harvest, playing "food shop", reusing materials, collective and active ownership, and planning activity in the garden (McCrea, 2015; Miller, 2007). Gardening may also trigger children's agency, achieve action competence and creativity to envision sustainable solutions (Caiman & Lundegård, 2014). Agency is particularly evident when children participate with an emancipatory approach (Cincera et al., 2017; McLennan, 2010).

Bartnæs and Bergan (2018) studied organic gardening as a place-based learning process. The aim of the study was to look at the ECE teacher's role, and the findings suggest that adults walking beside the child to interact with garden beds, tools and plants, pointing out clues of information along the way is important. Such wayfaring requires direct transferring of plant knowledge through education of attention, fine tuning of perceptional skills and atonement to the child's level of understanding (Ingold, 2010).

Harvesting wild food resources

Harvesting is a part of the traditional use of nature, especially where there has been, or still is, hunter-gatherer cultures (Lew-Levy, Reckin, Lavi, Cristóbal-Azkarate, Ellis-Davies, 2017; Łuczaj et al., 2012). In Norway, harvesting activities are considered a part of the outdoor traditions and of importance for the development of children's nature contact and knowledge (Ministry of Climate and Environment, 2016). Wild food resources are accessible for many ECE centres, both in rural and urban areas. Like gardening, local harvesting give experiences that influence sustainability holistically, including the consumer part of the food web. The children get direct experiences with nature and the food chain when they participate in harvesting, cooking and eating as shown in an ECE centre in northern Norway (Krempig & Utsi, 2017). The children and staff spent considerable time together in nature, exploring nature in playful and curiosity driven activities. Such experiences can be compared with cultures in hunter-gathering societies (Gray, 2009) which create human-nature relations, social bands and promote sharing and equity, important values and practices as eco-citizens. However, the adult's at-

titudes and influence are central for implementation of harvesting activities in kindergartens (Nuget & Beames, 2015). The study by Krempig and Utsi (2017) showed how harvesting combined children's scientific and social learning in nature. The involved children expressed interest and engagement both throughout the harvesting processes and when performing spontaneous or planned studies of plants and animals. Their engagement was expressed both verbally and physically. Supported by the teachers, the children discussed biology of the harvested organisms, ethics of hunting, and diversity of food resources in natural areas. They investigated the products with questioning and touching, activities that are commonly connected to curiosity (Jirout & Klahr, 2012, Patrick & Mantzicopoulos, 2015). As stated earlier, such curiosity may support a development of connection to nature and a growing understanding of the complexity of ecosystems, and might lead to an eco-centric view of nature. This suggests that through harvesting, children might explore and experience local nature and learn different ways of sustainable resource use. Introducing such science inquiry skills while exploring nature contribute to empower children (Sundberg & Ottander, 2014), also as eco-citizens. Utsi, Bøe and Krempig (2019) highlight the social dimension in children's and adult's learning outcomes of a harvesting project. While an engaged and competent companion in nature might stimulate children's future environmental engagement (Chawla, 2007; Thulin, 2011), Utsi, Bøe and Krempig (2019) show how the children also contributed to increasing the adult's knowledge base. We understand this as one of the ways these children perform their eco-citizenship.

Harvesting wild food resources might initiate a variety of nature experiences in early childhood, supporting inquiry-based learning and give insight into natural cycles. The socio-cultural dimension is evident in traditional harvesting activities and the social aspect of harvesting is expected to enhance the learning outcome. The potential for children to also explore the economic dimension of sustainability through harvesting lays in the use of the self-collected resources in different dishes or making food products for gifts and sale. Harvesting activities might support long-term learning and sustainable education for young children, facilitating being and becoming eco-citizens.

In the harvesting- and gardening-projects we have explored, both children and teachers experienced a variety of natural food resources. By closely exploring the food resources and the path from the field or the forest to the table, they may have developed an interest for and understanding of the origin of food. Both children and teachers increased their awareness and enjoyment of for example fresh vegetables and fish, and through this expressed an enhanced preference for local food. Simultaneously, they explored and learned about different species, and they communicated these experiences (Bergan, 2019; Krempig & Utsi, 2017; Utsi, Bøe & Krempig, 2019).

CHILDREN'S LITERATURE

How the concept of eco-citizens is understood and operationalized within academic research on children's literature depends on whether one examine how children are characterised as eco-citizens in the texts, or how texts address or position the child readers as potential eco-citizens.

The Australian research community on teacher education and children's literature has proved to be the most academic comprehensive in examining the possible connection between children's literature and children's role as eco-citizens. They have developed a data basis including *Children's Literature and the Environment*, identifying works for children that deal with the environment in imaginative, scientific, educational, and creative ways. It includes scholarly texts and references.

Massey (2009) examine "how a representative sample of Australian texts [...] constructs fictional ecological subjects in the texts, and offers readers ecological subject positions inscribed with the contemporary environmental ideologies" (p. iii). One may here understand the concept of 'ecological subject' as a kindred concept to that of eco-citizens. Massey identifies three "ideologically grounded positions that humans may assume when engaging with the environment" (p. iii). While the first two positions are labelled *unrestrained anthropocentrism* and *restrained anthropocentrism*, the third

is labelled *ecocentrism* (p. iii). This third position is perhaps the one that offers readers a position as an ecological subject or as an eco-citizen since it takes "a holistic approach to the recognition of the interconnectedness of all life forms and the physical elements of the environment" (p. 26).

According to Massey and Bradford (2011), one of the primary functions of children's environmental literature "is to socialize young people into becoming the responsible and empathetic adults of tomorrow by positioning readers as eco-citizens, dedicated both to sustainable development in the local sphere and also to global responsibility" (p. 109). Even though Massey and Bradford make use of the concept of eco-citizens, they do not offer a clear-cut definition. They suggest that children's environmental literature may attempt "to enlist readers in taking action, encouraging them to reflect on the world as it is, and to imagine future scenarios if environmental degradation proceeds unabated" (p. 110). One may interfere that to reflect *on the world as it is, and to imagine future scenarios* could be part of eco-citizens obligations (e.g. Næss & Jickling, 2000; Wals, 2012). Massey (2014) discuss how picturebooks construct children, both the characters and the readers, as responsible for sustainable futures, how the books didactically appeal to "children's sense of themselves as ecocitizens" (p. 27), and how verbal and visual narratives "create positions as eco-participants for child characters and readers" (p. 39). Once more eco-citizens may be exchanged with another concept, this time with 'eco-participants'.

The final contribution to the topic of children's literature and eco-citizenship is an article (Goga, 2017) on how picturebooks may help readers to connect, combine and relate their aesthetic reading experiences to outdoor activities, and, through this interrelation, develop or strengthen a connection to nature needed to become an eco-citizen. In this study, Goga found that one of the analysed picturebooks depicted its characters as eco-citizens, meaning, "problematizing their surroundings and displaying an agency of their own" (Goga, 2017, p. 94). In addition, readers are invited to adopt the eco-centric position of the characters. Such a position may encourage the child reader to take action and question the sustainability of, and actively the involvement in, their local community and nature. This view is hence in line with the conception of a child sized eco-citizenship.

HOW CAN CHILDREN BE REALIZED AS BEING AND BECOMING ECO-CITIZENS?

In this paper, our focus is on children's potential role as being and becoming eco-citizens. We will discuss the examples and their implications for the two aspects separately, before we investigate the consequences and possibilities for ECEfS.

Being eco-citizens

Children have legal rights as citizens (UNCRC, 1989), but the majority of our examples refer to different aspects of citizenship as a role, the way the children exercise their rights. We recognize children as different citizens, with different ways of participation, different responsibilities, and different contributions than adults. Children's participation through play and agency, the way they perform their eco-citizenship will differ from adult's engagement. This might reveal both possibilities and challenges when considering children as being eco-citizens.

Adults are responsible to support children's participation by providing tools and teaching skills. They are responsible to share earlier generations' experiences and knowledge, as when they communicate and wonder with the children or act as wayfarers in harvesting and gardening activities. At the same time, it is also the adult's responsibility to meet the children's attention to obstacles and to encourage the children to find sustainable solutions without interfering with their adult views (Caiman & Lundegård, 2014). This increase the importance of children's social belonging.

In gardening and harvesting situations, the children are active participants of a socio-cultural tradition. Spending considerable time together in nature, the adults and children in the pre-schools bound together in community, culture and place. The adults' role here may be to convey important

knowledge as on which species we may eat or cultivate, cultivation techniques or hunting strategies. Children's contributions as different eco-citizens may be innovative ideas to try different species, to initiate exploration of new cultivation techniques, new ways to use land-areas or how we may share crops. Children may also increase the staff's competence through their contribution in gardening and harvesting activities (Bergan, 2019; Utsi, Bøe & Krempig, 2019). There are however limitations also to these contributions. Some species are not edible, and there are diverse ways to set potatoes or sow carrots that give different yields and results.

Through mutual engagement in meaningful and recurrent activities meeting the human-nature interface, children and adults are active agents of learning and exploring. These activities could contribute to nature appreciation, an important motivator to sustainable actions and the act of taking care of the planet. In the outlined activities, adults and children are involved in collaborative processes, which may support key competences for sustainability as creative, complex and anticipatory thinking, systems thinking, action competence, and decision-making (Wiek, Withycombe & Redman 2011, UNESCO 2017). Competences that are all important for eco-citizens.

The central role of play in children's eco-citizenship is repeatedly the focus in this article. Nature interactions and careful encounters with children's literature in play may let children explore and take responsibility, and play may hence create valuable ways of meeting the future problems of sustainability. When reading environmental literature, both children and adults may reflect on our world as eco-citizens. To meet in literature encounters may provide opportunities for children and adults to explore and reflect upon such values and aims of both oneself and each other. Reading about children portrayed as eco-citizens may provide a starting point for reflections on adults' and children's agency.

Accepting children as citizens with different contributions than adults involves acceptance of and support to children's agency and ideas. Children have relevant experiences only they know, and they are not yet fully socialized into the adults' views of the world. The children may support adults to become eco-citizens through their questions and curiosity, thus giving rise to new knowledge, solutions and ways of doing practice. This may provide a possibility to contribute with new solutions, possibly challenging regular views of EfS. However, children's eco-citizenship may also challenge adult's principles and methods through their curiosity and interaction. In these times of uncertainty, there is a huge challenge to meet deviating ideas: How can we convey values and knowledge, while still not knowing which solutions will be the best for the future?

Becoming eco-citizens

Children have traditionally been considered as becoming citizens, and although we consider children as being eco-citizens we also acknowledge them as becoming eco-citizens. Education often emphasize children's learning within perspectives of them as becoming citizens. UNESCO (2014) view the aim of education as developing knowledge, skills, values and attitudes that learners need for securing a world which is more just, peaceful, inclusive, healthy and sustainable. As we see here, learning is important for both being and becoming eco-citizens, and these aspects are often linked.

Children need holistic perspectives, knowledge and skills that enable them to engage in sustainable practices, such as production and harvesting local food. Their engagement in pre-school and the involvement of their parents may inspire to small garden projects at home or an enjoyment for local fishing or berry picking. The children may play an important part to disseminating such sustainable practices, e.g. in urban settings, and thus becoming eco-citizens through meaningful hands on situated learning that has been initiated in ECE.

Through exploration, play, mutual engagement and curiosity, in activities to connect with nature, in gardening or harvesting or through reading children's literature, adults and children may together build the competences of present and future eco-citizens. While this list could include other perspectives and aspects from other disciplines, all these aspects affect children as becoming eco-citizens.

Facing new and partly unknown environmental challenges, both children and adults are learning to become eco-citizens.

CHILDREN AS ECO-CITIZENS - A NEW AIM FOR ECEFS

Children as being and becoming eco-citizens opens up a new line of thought on why and how we should work with EfS. We have shown that there is a prevalence of literature and practices of EfS focusing on children as becoming eco-citizens. We have however argued that it is of similar importance to view children as being eco-citizens.

Children with an active identity as eco-citizens may feel an initial sense of belonging to our common planet, including the more-than-human world. Knowing the value of participation, they may exercise and further develop a desire of care, solidarity, curiosity, and knowledge. This can promote children as active and informed members of a sustainable society. We argue that an identity as eco-citizen may provide an emerging understanding that humans, including each individual child, are active parts of the environment. In this perspective, our actions have consequences for the future.

We suggest that to consider children as both being and becoming eco-citizens should be recognized as one of the most important aims of ECEfS. Viewing children as *being* and *becoming* eco-citizens pave way for an openness and awareness of giving room to more than what we already know. While emphasising the responsibility of the adults, this openness may raise the unique perspectives children contribute to the contemporary challenges and help to find new and unexpected ways to proceed towards a more sustainable future.

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A Critical Analysis of Education for Sustainability in Early Childhood Curriculum Documents in China and Norway

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Abstract

Purpose: This article examines how early childhood curriculum documents in two culturally different contexts are associated with current concepts of sustainability and principles of early childhood education for sustainability (ECEfS) in China and Norway.

Design/Approach/Methods: Applying critical document analysis, the study explores a number of landmark curriculum documents from China and Norway, comparing the ways in which ECEfS is conceptualized, including the concept of sustainability, children as agents of change for sustainability, and sustainability in young children's everyday lives.

Findings: Corresponding to the analytical framework, China and Norway attach different importance to the three dimensions of sustainability—social-cultural, economic, and environmental. For example, Norway has a more autonomous view of children's agency, while China

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gives more emphasis to teachers' support. The two countries also have different perspectives on how to work with families and communities based on significantly different traditions and institutions. The comparative document analysis argues that predominant cultural dimensions in each context, such as collectivist and individualistic factors, may shape the understandings of sustainability in each country's early years' curriculum documents.

Originality/Values: By broadening the focus on the social-cultural aspects of sustainability, this study extends the development of a culturally inclusive understanding of the concept of sustainability and contextualized/localized approaches to ECEfS across the globe.

Keywords

Children's agency, China, early childhood curriculum, early childhood education for sustainability (ECEfS), education for sustainable development (ESD), Norway

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Introduction

Education is key to the global integrated framework of 17 Sustainable Development Goals (SDGs), which has been reaffirmed as a central concern by the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2015). However, early childhood education (ECE) has been quite slow at addressing sustainable development (SD) issues and did not play an active role as some other education sectors in developing governmental policies and innovative practices during the United Nations' Decades of Education for Sustainable Development in 2004–2015. Nevertheless, the advocacy by World Organisation for Early Childhood Education (OMEP) has seen the contribution of ECE to a sustainable society highlighted over the years, "as the values, attitudes, behaviours and skills acquired in this period may have a long-lasting impact in later life" (Pramling Samuelsson & Kaga, 2008, p. 9). Furthermore, it is increasingly recognized that ECE could play a significant role "in preparing present and future citizens and in aiding societies to make the necessary transitions to sustainability" (UNESCO, 2014, p. 70). Therefore, the relevance of early childhood education for sustainability (ECEfS) and the call for pedagogically strong ECE in this domain has continued to be articulated, driving more and more efforts focusing on how to deeply investigate the concepts associated with sustainability in early childhood curricula and encourage more innovative practices (Aürlemalm-Hagsér & Davis, 2014; Centre for Environment and Sustainability, 2009; Davis, 2009, 2015; Davis & Elliott, 2014; Weldemariam et al., 2017).

With this in mind, the purpose of this article is to compare two sets of early childhood curricula and related key documents from China and Norway, with respect to three key ideas embedded in ECEfS: (1) the concept of sustainability with three interconnecting pillars; (2) children as agents of

change for sustainability; (3) and sustainability in young children's everyday lives. Furthermore, as key actors for an international cooperation program connecting China and Norway, we expect to better understand the explicit and implicit meanings stated in the curricula, which might help our international team explore further possibilities to initiate better practices in ECEfS across the globe.

Although there is an increasing amount of research emphasizing the importance and implications of ECEfS, there is little—although growing—research about how the concept of sustainability is actually stated in curricula. This article contributes to emerging comparative curriculum document analyses about concepts related to ECEfS and further understanding and implications across cultures.

Literature review

Introduction to contexts and curriculum documents in ECE in China and Norway

China. In mainland China, preschools are called "you er yuan" (幼儿园), which literally means "kindergarten" in Chinese, usually referring to full-day programs serving children aged 3–6 years with a focus on education and care. Since a landmark policy of universal preschool for all in 2010, the landscape of ECE has been tremendously altered and continuing to evolve through many policy innovations (Li et al., 2017).

In terms of curriculum policies, there are three key documents. The first is the *Kindergarten Work Regulations* (hereafter referred to as the *KWGs 2016*), newly revised from the 1996 version and implemented from March 2016 (Ministry of Education of the People's Republic of China [MOE], 2016), as a mandatory framework for all registered kindergartens. The *KWGs 2016* includes 11 sections with 66 articles in relation to key operation issues, comprising safety, education and care, hygiene, equipment and facility, workforce, funding, the relationship of kindergarten, family and community, and organization and management.

The second relevant curriculum document is the *Kindergarten Education Guidelines* (hereafter referred to as the *KEGs 2001*), issued in July 2001 (MOE, 2001), that acts as a working framework for quality kindergarten education. The *KEGs 2001* consists of four parts, focusing on general principles, objectives and content, organization and implementation, and assessment.

The third document is the *Early Learning and Development Guidelines* for children aged 3–6 years (hereafter referred to as the *ELDGs 2012*) released in October 2012 (MOE, 2012). The *ELDGs 2012* sets reasonable and age-appropriate expectations and goals for children in five learning and developmental domains: health, language and early literacy, social development, science and mathematics, and the arts.

Recently, China has also advocated for more contributions to green development to balance economic growth with environmental protection, embracing SD as a major concern in the

contemporary era. Thus, China has also become more active in education for sustainable development (ESD). For example, the most recently elected government has targeted SD as a national priority with significant strategies for this (Zhou et al., 2016). However, very little curriculum development in ECE has touched on issues of ESD (Feng, 1998; Liu & Liu, 2008; Zhou, 2012; Zhou et al., 2016), let alone pedagogically strong ECEfS in Chinese preschools. More research and practice efforts need to be concentrated on such issues.

Norway. There are two key early childhood curriculum documents to be targeted in relation to Norway and SD. The first is the Act No. 64 of June 2005 relating to Kindergartens (hereafter referred to as the *Kindergarten Act 2005*), serving as a statutory scheme for kindergarten work (Ministry of Education and Research, 2005). The *Kindergarten Act 2005* has worked as a protection for access to kindergarten as a universal right for all Norwegian children, providing clear regulations for the roles and tasks of kindergartens and kindergarten authorities.

The second relevant document is the *Framework Plan for Kindergartens* (hereafter referred to as the *FPKs 2017*), newly revised and implemented from August 2017 (Ministry of Education and Research, 2017). The *FPKs 2017* covers nine key sections: core values, roles and responsibilities, objectives and content, children's participation, cooperation between home and kindergarten, transitions, kindergarten as a pedagogical undertaking, working methods, and learning areas.

As a pioneer in SD, Norway has been famous for its long and strong traditions in encouraging ESD and its practices from early on (Heggen, 2016). The former version of the *FPKs* endorsed "understanding of sustainable development shall be promoted in everyday life" (Ministry of Education and Research, 2006, p. 7), and the newly revised version officially mandated SD as one of the core values for ECE (Ministry of Education and Research, 2017). To some extent, Norway has played a vanguard role in the Nordic countries, and beyond. As a result, Sweden followed this policy in the following year. Such a concept of SD now has been regarded as one of the fundamental values in the newly updated National Curriculum for the Preschool (Skolverket, 2018).

Literature on curriculum document analysis related to ECEfS

Although the discourses of ESD have changed over time with an ebb and flow of national and international foci, there are some overlapping and contrasting frames in terms of curriculum document analysis about ECEfS. For example, Weldemariam et al. (2017) compared early childhood curriculum in Australia, England, Norway, Sweden, and the USA, to investigate four aspects of their curricula: sustainability presence, views of the child, human–environment relationship, and philosophical/theoretical underpinnings. Kim (2016) also adopted a critical document analysis approach to examine how early childhood curriculum documents in South Korean and Australian

contexts are aligned with current concepts of sustainability and ECEfS principles, including three components: the concept of sustainability in relation to the three pillars of SD, children as agents of change for sustainability, and sustainability in young children's everyday lives. Aürlemalm-Hagsér and Davis (2014) applied a critical theory lens and document analysis to look for four key elements in the Australian and Swedish early childhood curricula: inclusion of concepts of sustainability, recognition of human's place in nature and environmental stewardship, critical thinking for sustainability, and references to children as active participants for change. Additionally, Jóhannesson, Norðdahl, Óskarsdóttir, Pálsdóttir, and Pétursdóttir's research (2011) explored how the curricula from preschools to upper secondary level in Iceland dealt with issues of education for sustainability, focusing on seven characteristics: values, opinions, and emotions about nature and environment; knowledge contributing to a sensible use of nature; welfare and public health; democracy, participation, and action competence; equality and multicultural issues; global awareness; and finally, economic development and future prospects.

All these relevant comparative document analysis frames have chosen some similar analytic perspectives: the concept of sustainability, the image of children as active learners, and their potential as agents for change. Furthermore, a sociocultural approach to human development has been commonly accepted as a more inclusive way to understand early childhood and curriculum (Edwards, 2003; Rogoff, 2003). The New Zealand early childhood curriculum, *Te Whāriki*, has a sociocultural emphasis (New Zealand Ministry of Education, 1996), which has been included in the in-depth discussions in the main articles. Collectively, these research papers inspired this article's own analytical framework.

To sum up, this research aimed to analyze and compare the current national curriculum documents in early childhood in China and Norway and to articulate how these documents represent ECEfS. Specifically, the objectives of this analysis related to the following research questions:

- Is the concept of SD/sustainability explicitly and implicitly used in Chinese and Norwegian early childhood curriculum documents? If so, how?
- How, and in what ways, is the notion of children as active participants for change represented in the Chinese and Norwegian early childhood curriculum documents?
- How, and in what ways, is the notion of sustainability in young children's everyday lives reflected in related documents?

Methodology

This study is content analysis using collaborative inquiry, conducted in 2016–2017. The two lead authors, as key actors in an international partnership program for ESD in ECE in China and Norway, discussed how to select comparable curriculum documents and then arrived at the

analytical framework for the study through literature review and group discussion. They then worked closely with two research assistants, one from China and one from Norway, to implement the investigation of Chinese and Norwegian early childhood curricula. One research assistant also visited the Western Norway University of Applied Sciences and worked with one of the lead authors for 1 month to refine the coding scheme and arrive at a final consensus on coding. The analysis of the Chinese early childhood curriculum documents was conducted similarly.

It is important to note that the two Norwegian documents have official English versions, while all three of the Chinese documents are not available in English officially. However, as the lead author from China has a Chinese ethnic background—a professionally experienced translator, and a proficient writer in English of academic publications, she worked closely with the research assistants to ensure that all translations were clearly delivered.

The analytical framework

As noted, the structure of our analytical framework, adapted from Kim (2016), Aürlemalm-Hagsér and Davis (2014), and Weldemariam et al. (2017), used the three key curricula themes described below.

Theme 1: The concept of sustainability. Even though there is no single point of origin of this three-pillar conception, but rather a gradual emergence from United Nations' reports and academic literature (Purvis et al., 2019), the concept of sustainability has been commonly regarded as having three interconnected pillars or dimensions: environmental, economic, and social-cultural. Using Kim's study as a model (2016), each dimension was then broken down into further illustrative terms, then used as thematic keywords for coding.

Theme 2: Children as agents of change for sustainability. In terms of children's agency for creating change, this is a concept that has been highly recommended and well documented in ECEfS studies (Davis, 2015; Davis & Elliott, 2014; Hägglund & Pramling Samuelsson, 2009). It draws on both critical theory as an approach that emphasizes transformation, and also Sociology of Childhood perspectives that place children's capabilities at the forefront. Additionally, from post-structural perspectives, building children's complex relationships through curriculum illuminates children's subjectivities and exploring curriculum as milieus of belonging/being/becoming (Sellers, 2013) is a worthy purpose. Thus, this analytic theme adopted the five strands of the New Zealand early childhood curriculum document, *Te Whāriki* (New Zealand Ministry of Education, 1996, 2017): well-being, belonging, contribution, communication, and exploration.

Theme 3: Sustainability in young children's everyday lives. This theme took the five dimensions used by Kim (2016) to aid the analysis: home, kindergarten, community, nature, and outdoors. This

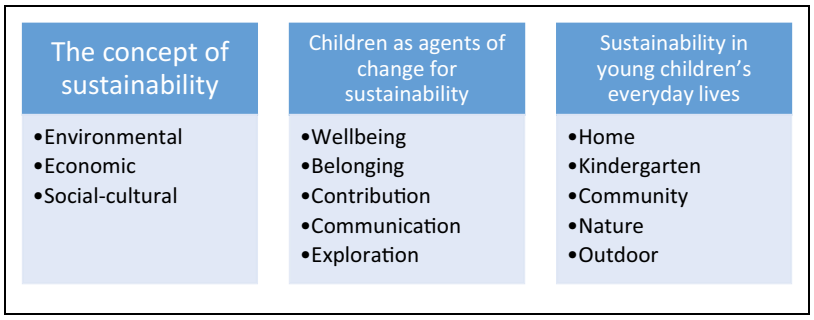


Figure 1. Analytical framework for ECEfS in curriculum documents. ECEfS: early childhood education for sustainability.

consideration originated from academic literature (Barratt et al., 2014; Elliott, 2014; Heggen, 2016; Zhou et al., 2016) that emphasizes the importance of sustainability as an everyday practice, and it also considered to highlight some promising practices in ECEfS that are emerging in these two countries.

Data collection and analysis

A fundamental problem in comparative studies is how to address the issue of comparability. Only objects that meet the same function (or role) may be meaningfully compared with each other (Farrell, 1979). Therefore, it may be reasonable and reliable for a cross-cultural comparison to be grounded on functional equivalency between the constructs. Wirth and Kolb (2012) proposed that scholars offer qualitative discussions of functional equivalence based on explorations of a concept's dimensions, theoretical considerations, additional information, and additional expert advice.

In considering the functional equivalency, the two sets of curriculum documents were the major data resources used in this research. In terms of the legal frameworks for ECE curriculum, the *KWGs 2016*, with 137 sentences, from China corresponds with the curriculum document from Norway, the *Kindergarten Act 2005*, with 124 sentences. As to the curriculum guidelines, the *KEGs 2001*, with 83 sentences, from China aligns with its counterpart from Norway, the *FPKs 2017*, with 129 sentences. Additionally, this research also recruited the updated curriculum documents from China, the *ELDGs 2012*, with 331 sentences.

We analyzed the data by reading and coding, sentence by sentence, within the three concepts and dimensions of each concept (see Figure 1). Firstly, we identified key terms and main ideas relevant to the 13 dimensions based on academic literature and local practices: a concept of sustainability with three pillars; children as agents of change for sustainability with five keywords; and sustainability in young children's everyday lives with five key terms. Secondly, we read carefully and thoroughly all of the 804 sentences and calculated how many statements in the

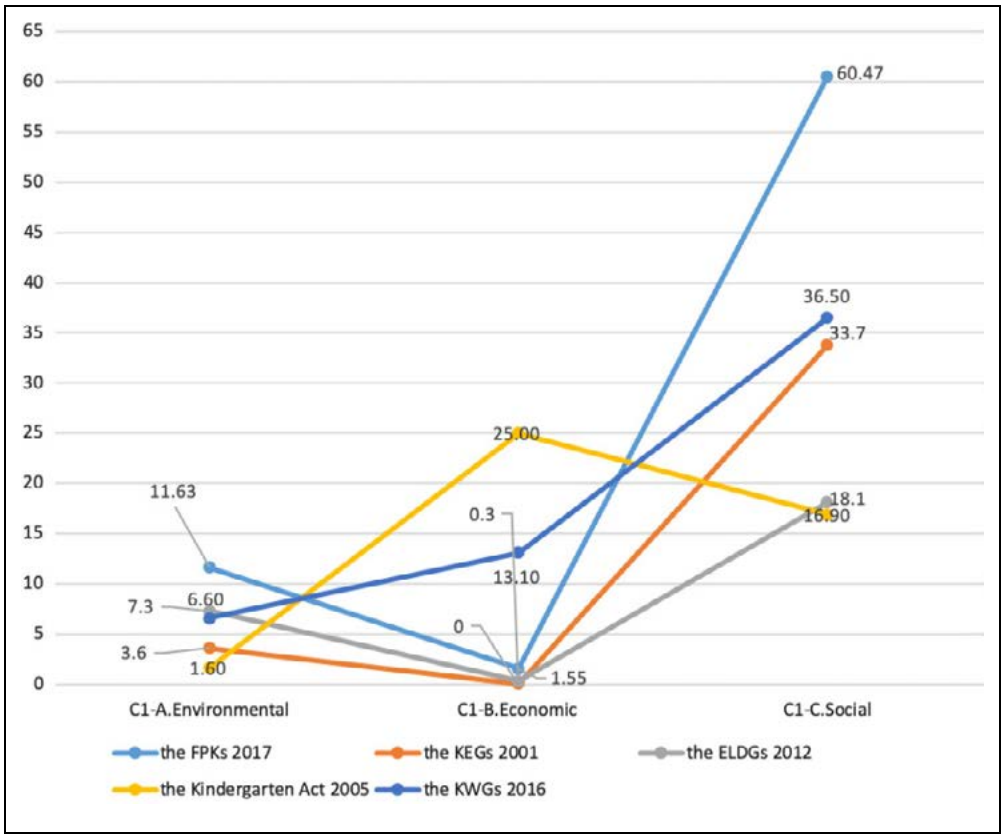


Figure 2. The percentage of concept of sustainability within curriculum documents.

curriculum documents represent sustainability concepts and principles within the three concepts and dimensions of each concept (see Figures 2 to 4). Thirdly, we looked back over the documents and, by group discussions, attempted to figure out the "true" nature of the meanings we were investigating, both explicitly and implicitly.

Research validity and generalizability

As qualitative researchers, we define ourselves as being insiders–outsiders in this comparative research, but also move beyond a strict outsider/insider dichotomy to emphasize the relative nature of researchers' identities and social positions, as dependent on our specific research contexts. The two leading researchers have rich experiences in comparative research in both Chinese and Norwegian cultures, as well as in wider international contexts. Thus, these researchers were able to play both roles as insiders and outsiders, and, at times, were able to figure out some roles that were in-between. We feel these capabilities are valuable because this study did not have any ambition to overgeneralize its research results, but to contribute to

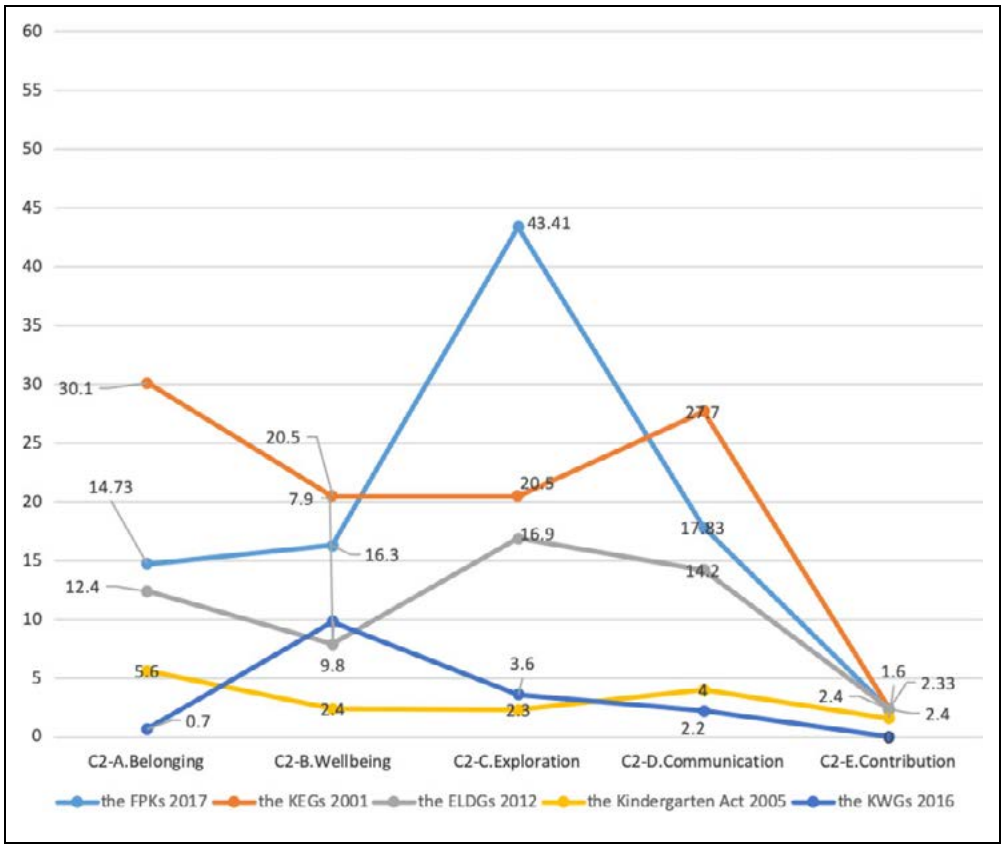


Figure 3. Percentage of representations of children as agents of change for sustainability within the curriculum documents.

better understandings and mutual respect for ECEfS in different cultures, also to an in-between space for seeking to be more inclusive, collaborative, participatory, reflexive, and nuanced (Crossley et al., 2016).

Findings

The concept of sustainability with three pillars

As a result of the content analysis, a general picture about sustainability emerged. For example, the *FPKs 2017* from Norway compared to the *ELDGs 2012* and the *KEGs 2001* from China, showed a stronger understanding and commitment to addressing the environmental (11.63%) and social-cultural (60.47%) dimensions of sustainability. However, the *Kindergarten Act 2005* from Norway, with higher percentage of presence of sustainability than that of the *KWGs 2016* from China in the dimension of economic aspects (25% and 13.1%, respectively). Further, as time has gone by, the environmental and social-cultural dimensions have become more and more visible and important

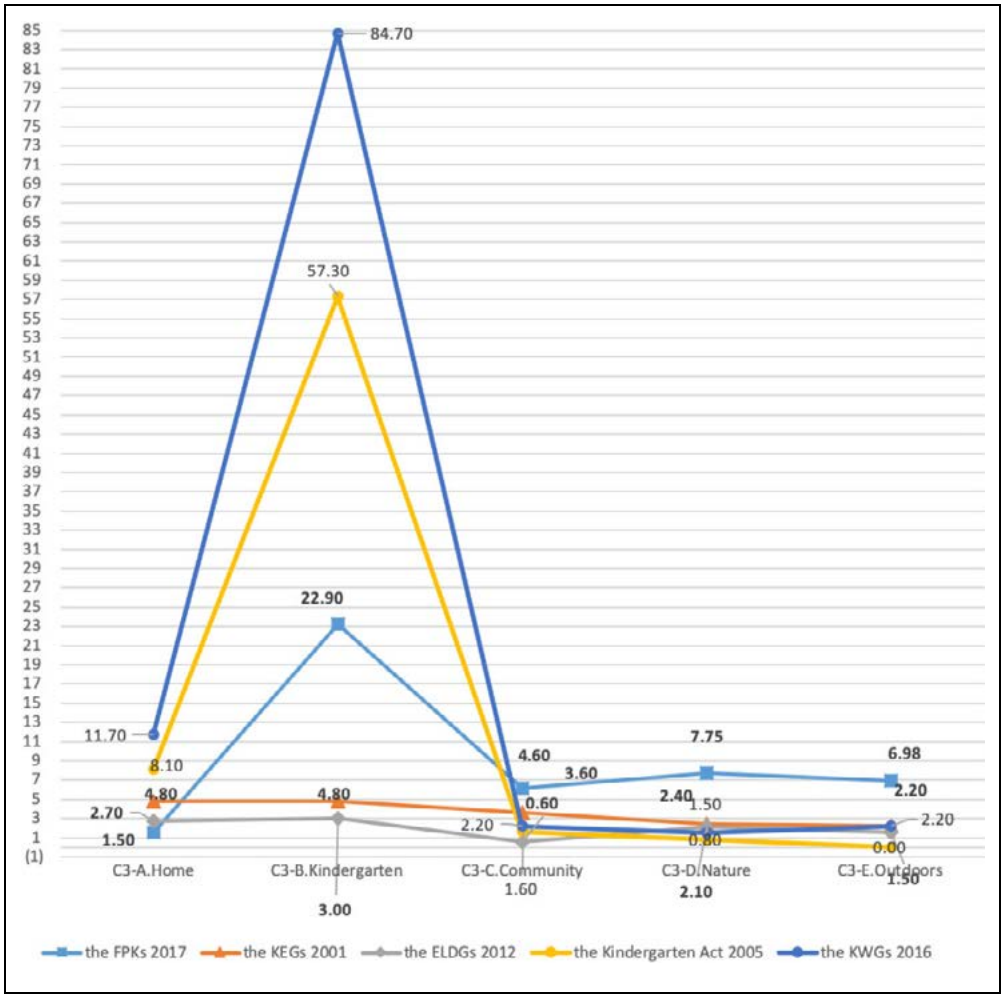


Figure 4. The percentage of notion of sustainability in young children's everyday lives within curriculum documents.

in both countries' curricula; however, there remains limited attention to the economic dimension of SD in these curriculum frameworks (see Figure 2).

There are some significant differences inside the texts, however. Firstly, in the environmental dimension, China prefers to the sustainable use of nature and care for nature, at the same time. For example, in China's *KWGs 2016*, it emphasizes that "kindergartens need to use environment as an important resource" in Article 30 (MOE, 2016). Norway, on the other hand, respects nature and proposes enjoyment of nature and living with nature in a sustainable way as one of fundamental values. The *ELDGs 2012* states, for example, "…begin to understand the close relationship between human beings and nature, and know to respect and cherish the life, and protect the

environment" (MOE, 2012). Also, at the beginning of the Norwegian *FPKs 2017*, it reaffirms the basic principles "Section 1 of *the Kindergarten Act* states that kindergartens shall build on fundamental values in the Christian and humanist traditions such as respect for human dignity and nature" (Ministry of Education and Research, 2017, p. 7).

Secondly, with reference to the social-cultural dimension of SD, China's documents express many concerns about children's health and hygiene. Norway's document, on the other hand, pays more attention to equity, democracy, diversity, and social justice, rooted in its social pedagogy tradition and social democracy model. To some extent, China documents pay more attention to personal well-being, while Norway documents focus more on society's well-being.

Thirdly, regarding the economic dimension, as to the institutional and legal framework, Norway has stood for sustainable economics with a balanced system of public and nonprofit kindergartens. However, in terms of its detailed curriculum guidelines, China shows more details about "saving water and electricity" in the *ELDGs 2012* (MOE, 2012), which recognizes greater significance of economically sustainable life styles in the challenge of growing consumerism.

Children as agents of change for sustainability

Based on the line chart (see Figure 3), the Norwegian *FPKs 2017* strongly argues for children's exploration (with the highest percentage of 43.41) within a lived cultural and historical belief in outdoor free play and risky play in all weather. The Norwegian *FPKs 2017* also attaches greater importance to children's belonging, well-being, and communication. Risky play might be seen as a good way to promote related ideas. One of the new elements in the *FPKs 2017*, compared to the previous document, laid an even stronger emphasis on the importance of risky play. "By engaging with the human body, food and health, kindergartens shall help the children to…(…)…evaluate and master risky play through physical challenges." And the "staff shall…(…)…be proactive and present, support and challenge the children to engage in physical play and acknowledge their achievements" (Ministry of Education and Research, 2017, pp. 49–50).

In the Chinese *KEGs 2001* and the *ELDGs 2012*, the content appears to have a similar attitude to children's belonging, well-being, exploration, and communication. But it is interesting to find that both countries' documents did not register highly in the dimension of children's contribution to sustainability (see Figure 3).

However, there are two quite different images of children's agency illustrated in the two different texts and contexts. In the Norwegian curriculum documents, when it comes to representations of children and childhood, these mandate that "Kindergartens shall respect and safeguard the intrinsic value of childhood" (Ministry of Education and Research, 2017, p. 8). Furthermore, teachers' roles are mainly about *supporting* child-centeredness, autonomy, and leadership. In the Chinese counterparts, teachers play much more active and *leading* roles in supporting children's

all-around development. Especially in the *KEGs 2001*, it provides a number of goals for children in the five learning domains, and there is explicit detailed information about what teachers should do to achieve these goals. In this regard, Chinese discourses about children and childhood have changed dramatically from the *ELDGs 2012*, as the newer curriculum document underlines the following principles: (1) pay attention to the development of the whole child, (2) respect children's individuality, (3) understand young children's learning processes, and (4) comprehend the importance of how children approach learning (MOE, 2012).

Sustainability in young children's everyday lives

Analysis of both sets of national curriculum documents (see Figure 4) identify strong appreciation of the importance of kindergarten to bring sustainability in young children's everyday lives, especially the *Kindergarten Act 2005* and the *KWGs 2016* as mandatory frameworks for kindergarten work (84.7% and 57.3%, respectively). However, the two countries illustrate different perspectives to working with families and communities, based on their different cultures, traditions, and institutions. In the Norwegian *Kindergarten Act 2005*, there is a separate Section 4 related to parents' councils and coordinating committees, ensuring that important matters are submitted to parents' councils and the coordinating committees (Ministry of Education and Research, 2005). In the updated Chinese *KWGs 2016*, there is also a separate Chapter 9 dedicated to kindergarten, family, and community partnership, in order to ensure that parents' councils are under the supervision of principals and kindergartens' support for the local community in parenting and childcare service (MOE, 2012). Since partnership building as a critical success component of whole-school sustainability approaches (Henderson & Tilbury, 2004), family, kindergarten, and community partnerships are parts of preconditions for sustainability, and the importance of goal-linked family, school, and community engagement for sustainability in young children's everyday lives needs further attention.

With regards to everyday practices, kindergartens are still seen as centered living spaces for young children's everyday lives. However, the newer Norwegian *FPKs 2017*, compared to the Chinese *KEGs 2001* and the *ELDGs 2012*, puts a higher premium on community, nature, and outdoors, underscoring the importance of Nordic social pedagogy and deep connectedness with nature. In China, the central focus on kindergartens and the outdoors time seems to relate more to safety issues impacting on vulnerable children.

In summary, based on the content analysis of the most recent ECE curriculum documents, China and Norway attach different degrees of importance to the three dimensions of sustainability. Norway's documents illustrate a more autonomous notion of children's agency where children are encouraged to be leaders, while the Chinese curricula give more emphasis to teachers' moving toward the idea of child-centeredness. The two countries' documents also reveal different

perspectives related to kindergartens' working with families and communities, based on their different cultures, traditions, and institutions. Overall, this analysis suggests that these national ECE curriculum documents and contexts create different pathways to ECEfS.

Ways forward for China and Norway

This article has examined differences and similarities between two national early childhood curriculum documents, from China and Norway, in order to better understand the positions of each national curriculum in relation to SD, and to advocate further for education for sustainability.

Curriculum frameworks play an integral role in offering practitioners guidance and mandate for initiatives such as education for sustainability. Further, they have the potential to support key stakeholders in academic, policy, and professional worlds to explore concepts and practices such as ECEfS. Pinar (2011, 2012) defined a dynamic understanding of curriculum as complicated conversations, complex questions, and dynamic working practices, drawing on multiple narratives and perspectives with personal, historical, social, cultural, postcolonial, political, and ethical considerations. In ECE, New Zealand's *Te Whāriki* offers a broad view of curriculum, "taking it to include all the experiences, activities and events, both direct and indirect, that occur within the ECE setting" (New Zealand Ministry of Education, 2017, p. 7). We concur with such a generalized curriculum view, and support the notion of curriculum roots having diversified origins and traditions that inform diverse practices, both locally and globally. With this in mind, here are three recommendations arising from this cross-country review of curriculum, based on each of the three key themes developed for this cross-national curriculum analysis.

Understanding cultural roles in shaping the concept of sustainability

Sustainability is a dynamic concept, with different nations providing their own unique philosophical, historical, and social foundations to understand and manipulate ideas associated with sustainability (Inoue, 2014). While it seems that China and Norway have significant differences in terms of sustainability, especially in human–environment relationships, and social-cultural associations, nevertheless, they do share some similar ideologies about sustainability. Deep ecologists have emphasized Taoist values that have relevance to environmental theory (Naess, 1986/1995), and Daoism as a "green religion" could aid humanity's search for sustainable futures (Miller, 2017). When China reconsiders how to learn more from its traditions and cultures, ECEfS could thrive in this vast nation with contemporary, creative adaptions. All the research documents considered in this study have reminded us to be sensitive and deeply respectful of other points of view in order to learn from these and to educate ourselves.

Supporting more powerful children's images and agency in learning and play

This study has reinforced some international consensus that children can be active learners and competent citizens, in the here-and-now, who have the competence to be agents of change for sustainability. Here, we draw on the *Te Whāriki* curriculum document with its vision of children who are: *competent and confident learners and communicators, healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society* (New Zealand Ministry of Education, 2017, p. 6). This curriculum offers views of children that are inspiring for other national curricula in ECE.

However, it is also possible to explore alternatives to ECEfS that, to date, have not been widely discussed in current Western literature. One such alternative is Anji Play, located in Anji County where a place and a material (bamboo) come together to reinforce thinking on sustainability in rural China (Flynn et al., 2017). Anji Play is firmly rooted in a strong commitment to promoting eco-civilization, and it is described as an ecology of learning, that has five principles: love, risk, joy, engagement, and reflection (Coffino & Bailey, 2019). Since Anji Play is famous for preparing children to be resilient through play, it is being practiced in public early childhood programs in all of China's 34 provinces and administrative regions. Furthermore, a feature of Anji Play is the construction of children's working theories. As Wood and Hedges (2016) have argued, contemporary policy frameworks that seek to develop working theories could frame up an alternative or solution to addressing the continuing struggle between curriculum theory and practice. In children's stories of Anji Play, working theories flourish inside children's learning and play. To some extent, Anji Play has played an important role in advocating for children's agency and children as active learners in the here and now, which made it an alternative solution to ECEfS in China and beyond.

Fostering a whole community approach to sustainability in children's everyday lives

Fostering a whole community approach to sustainability is aimed at creating sustainable communities, which require all individuals, families, social and political structures, and all organizations to have the knowledge, skills, values, capacity, and motivation to respond to the complex sustainability issues encountered in everyday life. This must be contextual and relevant to children, families, and communities' own particular social and political milieu.

This study has shown that curriculum needs to be linked to each nation's histories and priorities. As a consequence, emerging international ECEfS policy and practice cannot be a one-size-fits-all approach. Variety and diversity must be respected, and indeed, embraced. As the United Nations' Agenda 2030 suggests, global partnerships are essential for a sustainable future for all (United Nations, 2015). Therefore, comparative research and international cooperation such as that

described in this article should be further advanced in order to nourish deeper global understanding and local action plans for ECEfS into the future.

Declaration of conflicting interests

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Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institution and/or National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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'World Environmental Education Congresses' og naturfagenes rolle innen utdanning for bærekraftig utvikling

Abstract

This paper elucidates the role of the sciences within education for sustainable development as it is reflected on the ***World Environmental Education Congress (WEEC), a leading international conference since 2003. With a historical perspective, and observations, interviews and a look at the presentations of the WEEC 2015 and WEEC 2017, this study reveals an underrepresentation of science education, while a dominance was registered on WEEC conferences for ten years ago.*** *Both the WEEC 2015 and WEEC 2017 provided plenty of information about science related realities, but little about how to get children and the youth to understand them. Only few of the papers and posters were addressed to children's and pupils learning related to physics or biogeochemical basic understanding. The understanding of natural interrelationships and concepts is essential for children and the youth for to become informed decision-makers and active participants in a sustainable society.*

INNLEDNING

Naturfagundervisningen - internasjonalt 'science education'- har forandret sin rolle gjennom tidene, og forholdet til henholdsvis miljøundervisning eller 'environmental education' (EE), og utdanning for bærekraftig utvikling (ESD), har blitt diskutert siden 1960tallet (Breiting, 2011; Holbrook, 2009; Kopnina, 2012, 2014; Turmo & Östergaard 2011; Öhman, 2006). Relativt ny i denne diskursen er FNs bærekraftsmål mot 2030 (UNESCO, 2015) som understreker at mange utfordringer i dagens samfunn er av teknologisk eller naturvitenskapelig karakter (cf. Scoullos, 2005; Sinnes & Jegstad, 2011; Sundberg & Ottander, 2014; Turmo & Østergaard, 2011). I Norge er barnehagen samtidig blitt en offisiell del av den livslange læringen relatert til realfag (Kunnskapsdepartement, 2015).

Artikkelen tar utgangspunkt i en historisk tilbakeblikk på miljøundervisningen og dens vei til utdanning for bærekraftig utvikling (ESD). Den biannuale 'World environmental education congress' (WEEC) er et møte for alle som arbeider med eller forsker relatert til miljøundervisning og bærekraftig utvikling på alle utdanningsnivåer. Den er en av de ledende internasjonale konferanser for utdanning for miljø og bærekraftig utvikling, og ses i denne sammenhengen på som en kontinuerlig og sentral arena der statusen og den utviklingen av 'science education' kan bli synlig (Breiting, 2009; Cutting & Cook, 2009; Ferreira, 2013; Jickling, 2010). Artikkelen ser spesielt på WEEC i Gøteborg i 2015 (29. juni til 2. juli 2015), og på WEEC i Vancouver i 2017 (9.-15. september 2017). Ved hjelp av kvalitative innholdsanalyser vil studien belyse hvordan rollen av 'science education' innen utdanning for bærekraftig utvikling avspeiles på WEEC 2015 and 2017, og hvordan denne rollen kan utvikles videre, både med tanke på de 17 bærekraftmål (UNESCO, 2015) og inkludering av små barn i utdanningen.

Metodologi

Denne reflekterende studien er basert på en sosiokulturell tilnærming, som anser læring til å skje i sosiale kontekster (Lave & Wenger, 1991) som for eksempel på konferanser, i barnehager og skoler. Med utgangspunkt i utviklingen fra miljøutdanning til utdanning for bærekraftig utvikling, skal det ses på rollen av naturfagundervisningen 'science education', slik den avspeiles på de to siste WEEC kongressene i 2015 og i 2017.

Disse to kongressene kan ses på som to case, og i denne eksplorerende refleksjonsstudien skal konferansene undersøkes ved hjelp av kvalitative innholdsanalyser av latent og manifest innhold (Neuendorf, 2017). Innholdsanalyser beskriver karakteristika, identifiserer sammenhenger, og fortolker et datamateriale, og kan bidra til en mer helhetlig forståelse (Neuendorf 2017, s. 42). I denne studien ble innholdet av de to konferansene analysert ved bruk av tilbakeblikk og intervjuer, fremstilt i form av fortellinger, i tillegg til programtemaer og en abstraktstikkordanalyse fra WEEC 15 (se avsnittene nedenfor). Følgende refleksjonsspørsmål skal belyses:

- Hvilken rolle spiller 'science education' på WEEC 2015 and 2017?
- Hvordan tematiserer konferansene 'science education' for (små) barn?
- Hvordan fremtrer undervisning og læring om grunnleggende naturfaglige konsepter på disse konferansene?

Tilbakeblikk på konferansene og intervjuer

Utgangspunkt for denne delen av innholdsanalysen er deltakende observasjon og intervjuer (som deler av en form for feltarbeide) på både WEEC 2015 og WEEC 2017, og et blikk på utvalgte foredrag og poster fra konferansene. På WEEC 2017, ble det tatt bilder av de fleste (58) poster i de observerte seksjonene, for å få et innblikk i posterbidragene og for å "kunne se tilbake" på deler av konferansen. På begge konferansene ble folk spontant spurt om å stille til åpne intervju, både deltakere, foredragsholdere og personer fra organisasjoner. Et titalls personer ble intervjuet på hver av konferansene, derav 2 og 6 navngitte personer henholdsvis på WEEC 2015 og WEEC 2017. Men ikke alle intervjuer bidrog med nye innholdselementer, og bare signifikante utsagn ble valgt ut for presentasjonen. Intervjuene belyser mer eller mindre 'latent' innhold av konferansen (Robson & McCartan, 2016, s. 354; Neuendorf, 2017, s. 32). Potter og Levine-Donnerstein (1999) påpeker at det er en flytende overgang mellom manifest og latent innhold (Neuendorf, 2017, s. 163).

Deltakersituasjonen er en selektiv tilnærming, påvirket av forskerens/forfatterens for-forståelse, den kan ikke gi et heldekkende eller representativt bilde (Grønmo, 2004, s. 236, 373). Presentasjonene av de to konferansene fremhever tilsiktete innholdselementer og kan derfor ses som fortolkende fortellinger, eller narrativer (Bell, 2002; Chase, 2013), men er først og fremst refleksjoner. Ifølge Smith (2000) og Colucci-Gray, Perazzone, Dodman & Camino (2013, s. 133) er narrativer egnet til å bidra til kvalitative innholdsanalyser.

I teorien av Colucci-Gray (et al., 2013) ble det identifisert fem kriterier, beskrevet under 'En teori for 'sustainability science'. Disse kriteriene ble brukt for å gjenkjenne og kategorisere meningsskapende

innholdselementer fra refleksjonsstudiens samlete analysematerialet, og innholdselementene ble diskutert i forhold til refleksjonsspørsmålene (cf. Ryan & Bernard, 2003). De fem kriteriene (Colucci-Gray et al., 2013) ble også valgt som overskrifter i diskusjons- og refleksjonsdelen.

WEEC 2015 - kartlegging av foredragenes stikkord

For å belyse naturfagenes rolle på konferansene, ble det i kjølvannet av WEEC 2015 kartlagt hvordan konferanseforedragene var fordelt på emner, basert på bidragsyternes stikkord i konferansen sin online abstraktdatabase. Tanken var å gjennomføre den samme kartleggingen også for WEEC 2017, men så langt har WEEC 2017 ikke publisert en tilsvarende abstraktdatabase. Kartleggingen i denne foreliggende publikasjonen skal være oppstarten av en planlagt longitudinell studie for å kunne sammenligne utviklingen på WEEC kongressene fremover med tanke på emnene som foredragene handler om.

Kartleggingen undersøker de fokus som deltakerne har hatt i sine presenterte foredrag. For foredragene på WEEC 2015 ble denne kartleggingen gjennomført ved hjelp av en kvalitativ begrepskategorisering av stikkordene (jf. Grønmo, 2004) til de 450 abstrakter, der hvert abstrakt hadde 3-4 stikkord. Det ble registrert hvor mange abstrakt som viser til de samme stikkord eller til stikkord som ligger innholdsmessig nært opp mot hverandre. Ved bruk av kvalitativ koding (Hjerm & Lindgren, 2011) ble det identifisert nøkkelkategorier som peket seg ut (jf. Grønmo, 2004). Disse nøkkelkategoriene eller emner som samler stikkordene, er fremstilt i et søylediagram (Figur 1). Stikkord som mer eller mindre passet for alle eller veldig mange av abstraktene, som for eksempel ”miljøundervisning”, er ikke tatt med i analysen.

HISTORISK BAKGRUNN - MILJØUTDANNING OG KONFERANSER

Linken mellom kvalitet på miljøet og kvalitet på utdanningen ble til begrepet ”environmental education”, brukt av verdens første globale miljøorganisasjon ”International Union for Conservation of Nature” i 1948 (Disinger, 1983; Palmer, 1998). Nødvendigheten av utdanning for miljøet og for bærekraftig utvikling trengte seg frem under den miljøpolitiske bevisstgjøringsprosessen på 1960 tallet, med blant annet boken ”The silent spring” (Carson, 1962/2000). FNs første miljøkonferanse i Stockholm i 1972, ble fulgt av den Belgrader Charter (UNEP, 1975), med globale rammer for environmental education. FNs første konferanse for miljøutdanning var i Tbilisi, Sovjetunion i 1977 (UNEP, 1977). Brundtlandrapporten kom i 1987 (WCED, 1987), det fulgte Riokonferansen (UNEP, 1992). Etter en utdanningskonferanse i Thessaloniki i Hellas i 1997, fulgte den første WEEC kongress i Espinho, Portugal i 2003. For å bevare kontinuitet, og for å fremme debatt, praksis og forskning innen feltet, ble ”WEEC - International Environmental Education Network” etablert. Siden møtet i Torino, Italia, i 2005, ble kongressen arrangert annet hvert år: Durban, South Africa (2007), Montréal, Canada (2009), Brisbane, Australia (2011), og Marrakech, Marokko i 2013 (http://www.environmental-education.org/en/who-we-are/the-weec-network.html).

Utdanning for miljøet har internasjonalt vært nært knyttet til biologi og økologiundervisning (Goldbech & Jörgensen, 1990, s. 16, Sörlin & Öckerman, 2002; Öhman, 2006). Med bakgrunn i Tbilisi deklarasjonen (UNEP, 1977) og oppfølgende konferanser, har miljøundervisningen i Norden hatt nøkkelord som livslang prosess, tverr- og flerfaglighet, metodemangfold, problemorientering, fokus på ute- og lokalmiljøet, det naturgitte og det menneskeskapte, og verdispørsmål (Goldbech & Jörgensen, 1990, s. 15). Ifølge Breiting (2009) ble overgangen fra EE til ESD spesielt tydelig på WEEC 2007, både i ’tanker og praksis’. WEEC 2007 hadde omtrent like mye fokus på (den eldre) EE vinklingen, som på den utvidete og mer tverrfaglige ESD vinklingen, men var dominert av fagpersoner med miljø- og naturfaglig bakgrunn. Etter hvert har mange forskere sett et skifte fra EE til ESD, der EE ble en del av ESD (Breiting, 2011; Eilam & Trop 2010; Kopnina, 2012, 2014; Ärlemalm-Hagsér, 2013).

Etter en tid med debatt om hvor vidt læring rundt ESD kan være politisk objektiv med tanke på begrepet ’utvikling’ (Garrard, 2007; Skulberg & Harsvik, 2012), har FNs tiår for utdanning for

bærekraftig utvikling (2005–2014) vært med på å etablere ESD internasjonalt, og utdypet innholdet av de fire dimensjoner naturmiljøet, den økonomiske, den sosiale og den politiske dimensjonen (UNESCO, 2005, 2012, 2014; Wals, 2009). Barn og unge, også i barnehagen, skal ikke bare lære i naturen og om naturen, men også for naturen (Rambøll, 2015; Ärlemalm-Hagsér, 2013).

UNESCO (2015) og de 17 bærekraftsmål mot 2030 understreker at menneskesamfunnet ikke lenger står i motsetning til naturen, men begge er deler av en helhet. Demokratisk deltakelse, rettferdighet mellom mennesker og folkeslag, helse og livskvalitet er sentrale fokus i dag, i tillegg til videreutvikling av handlingskompetanse for utvikling. De humanistiske fag og samfunnsvitenskaper er like viktige som naturfagene.

EN TEORI FOR 'SUSTAINABILITY SCIENCE'

Colucci-Gray (et al., 2013) introduserer en teori for 'sustainability science' basert på grunnleggende (naturfaglige) konsepter, epistemologiske og metodiske betraktninger. Teorien vil bidra til å orientere 'science education' mot en bærekraftig perspektiv. Forskergruppen påpeker at både naturvitenskap og naturfagundervisning har alltid vært påvirket av språk, kultur og samfunn, men historisk har deres fokus i stor grad vært på dypde analyser av utvalgte og avgrensete deler av virkeligheten. I nyere tid har naturfagbasert teknologi fått en enorm betydning for global energi-, material- og informasjonsflyt og for verdens mangfoldige naturlige, kulturelle og sosiale systemer. I disse komplekse systemene med mangfoldige nivåer, relasjoner og sammenhenger, forsvinner lett grensene mellom alle mulige prosesser og fenomener, og de er full av usikkerheter. På bakgrunn av denne bevisstheten at vi bare kan ha en ufullstendig forståelse av verden, foreslår Colucci-Gray (et al., 2013) inquiry baserte tverrfaglige undervisningsmetoder for å lære for situasjoner der fakta er usikre, verdiene er i konflikt, mye står på spill og raske avgjørelser er nødvendige (jf. Elmose & Roth, 2005). Ved siden av verdsettelse, fremheves nødvendigheten av dialog og utveksling mellom alle mennesker fra barn til spesialistene, og det understrekes nødvendigheten av samtaler og samhandling mellom vitenskapen og utdanning. Utgangspunkt for metoden er de magfoldige relasjonene mellom og innenfor alle verdens komplekse og tverrfaglige systemer. Som utgangspunkt for en begynnende forståelse av disse systemene, vises til noen grunnleggende (naturfaglige) konsepter som kan brukes til å beskrive og forstå fenomener og prosesser i alle fagfelt, som for eksempel flyt ('flow'), barrierer ('boundaries') og utveksling ('exchange'), prosess og produkt, komponent og system, mikro og makro, eller kretsløp.

Både mellom to celler og mellom organismer og deres miljø, eller for eksempel mellom to barnehage, kan det være flyt av materialer, det kan være barrierer og det kan være utveksling i mangfoldige former. Konseptet 'kretsløp' kan beskrive ulike sammenhenger både i naturen og i samfunnet. Poenget er ikke å få (små) barn og unge til å forstå flest mulig konsepter så tidlig som mulig i livet, men hvis vi lykkes til gi dem en forståelse av et konsept, så innebærer dette et stor potensiale til forståelse for andre konsepter og til egne kreative konstruksjoner av tverrfaglig kunnskap (Colucci-Gray et al., 2013). Konseptenes forklaringer og kommunikasjon blir grunnlaget for 'links' mellom ulike andre konsepter, perspektiver og praktiske erfaringer i alle fag.

Sammenfattende fremhever teorien blant annet de følgende kriterier: tverrfaglighet og helheten, læring for krisemestring, dialog mellom vitenskapen og utdanning, grunnleggende (naturfaglige) konsepter, lokal og global tilnærming.

ANALYSE AV INNHOLDSELEMENTER OG INNTRYKK FRA KONFERANSENE

Etter et blikk på programtemaene fra WEEC 2015 og WEEC 2017, ble foredragsholdernes abstrakter på WEEC 2015 analysert, og deretter presenteres narrativer fra begge konferansene.

Temaer som ble satt opp for WEEC 2015 og WEEC 2017

Kongressene WEEC 2015, med motto '*Planet and People – how can they develop together*' og WEEC 2017, med motto '*Cultureducation – weaving new connections*' (ordsammensetning av 'culture' og 'education'), inviterte til deltagelse med lignende temaer i programmene. Ny på WEEC 2017 var urbefolkningsperspektiver og etikk, se Tabell 1:

Tabell 1. Temaer fra programmene til WEEC 2015 og 2017.

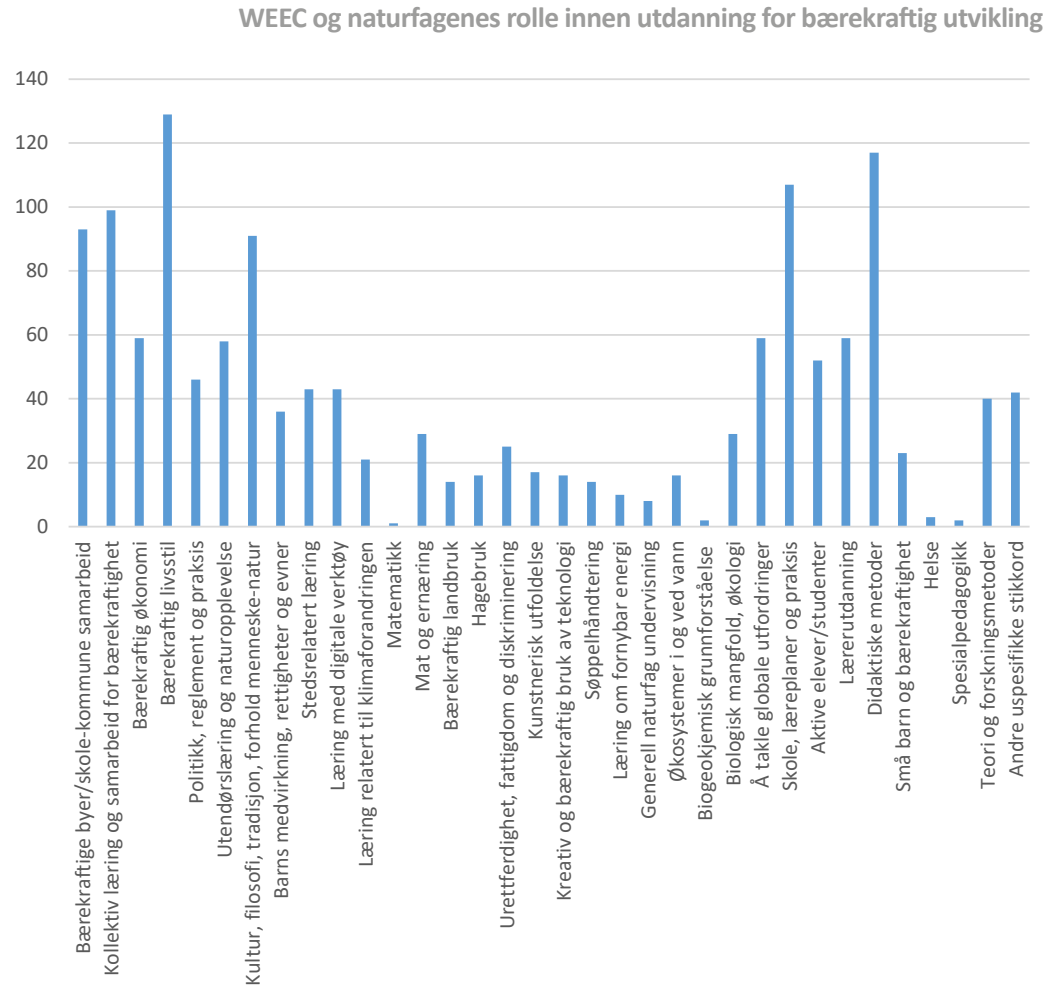
Programtemaer for WEEC 2015	Programtemaer for WEEC 2017
1. Taking children seriously in addressing global challenges	1. Early Childhood Education
2. Sense of place in the digital age	2. Place-based Education and local Outdoor Learning
3. Environmental Education and poverty reduction	3. Architecture and Green Design
4. Learning for Green Cities	4. Arts-based Approaches
5. Concepts for environmental stewardship and sustainability	5. Agriculture and Garden-based Learning
6. Moving from awareness to action	6. Global and Cultural Diversity
7. Environmental and Sustainability Education and accountability	7. Urban Ecosystems
8. Green Economy: education and learning for green jobs in a green society	8. Environmental Communication (and Uncertainty)
9. Research in Environmental and Sustainability Education	9. Indigenous Knowledge
10. Educational policy development	10. Ethics lead Learning and Sustainability
11. Education and learning for climate change adaptation and resilience	11. Social Responsibility and Agency/Activism
	12. Nature as Teacher/Nature as Researcher
	13. Global Policy and Environmental Education
	14. Perspectives, Challenges and Innovation in Research

Foredragsholdernes emner på WEEC 2015 i Gøteborg

Til en viss grad påvirker forutbestemte temaer hvem og hvilke bidrag som vil delta på en konferanse. Men forskerne og lærerne på sin side planlegger å presentere sin forskning eller sitt utviklingsarbeid på WEEC konferanser, også uavhengig av årets temaer. For å finne ut hva disse foredragene handler om, ble det gjennomført en kvalitativ begrepskategorisering av stikkordene til de 450 abstrakter for disse foredragene (jf. Grønmo, 2004).

Stikkordanalysen viste stor bredde og variasjon blant de muntlige foredrag. De til sammen 1419 registrerte stikkord fra alle abstraktene, viste 310 ulike stikkord som ble kategorisert inn under 34 emner som er fremstilt i Figur 1.

Topp emnet på WEEC 2015 viste seg å være 'bærekraftig livsstil', som var i fokus i hele 129 foredrag. Halvparten av foredragene hadde en generell fokus på undervisningspraksis og lærerutdanning på alle nivåer, noe som understrekes av de to nest hyppigste emner: 'didaktiske metoder' (117 foredrag) og 'skole, læreplaner og praksis' (107 foredrag) (Figur 1). Relativ sterkt representert var foredrag som omhandlet ulike former for samarbeid for bærekraftighet. Foredragene viste ellers mange eksempler på god praksis for miljø og bærekraftig utvikling.



Figur 1. Lignende stikkord av alle konferanseforedrag på WEEC 2015, fordelt på emner. (N=1419)

Narrativ fra WEEC 2015 i Gøteborg

På åpningen av kongresssen understreket Co-chair Ingrid Pramling Samuelsen at utdanning for alle – alle land, alle gutter og jenter, alle aldre – er helt sentralt for global bærekraftighet, og er et mål som fortsatt ikke er nådd. Co-chair Arjen Wals påpekte det store globale bilde som blant annet viser fortløpende tap av biologisk mangfold og økosystemer, klimaproblematikken, forurensning av vann, luft, jord og organismer, fattigdom, sult, mangel på likestilling og tilgang til utdanning, krig og urettferdighet. Den italienske miljøsosiologen Mario Salomone henviste til Aichi-Nagoya Deklarasjonen (UNESCO, 2014), og påpekte spesielt betydningen av (læring om) naturvitenskap og teknologi for en bærekraftig utvikling.

Foredragene varierte fra organiserte førstehåndserfaringer om biodiversitet og jordfauna (Danielsson, Ekvall, Backman & Carlson, 2015, Juni), til lav karbon konsepter og andre ideer for å redusere det økologiske fotavtrykket (Pradhan et al., 2015, Juli; UNEP, 2013). Foredraget til Ottander og Sundberg (2015, Juli) om muligheter og utfordringer for naturfaget til å bidra til arbeidet med bærekraftig utvikling i barnehagen, reiste en diskusjon rundt naturfaget, dets definisjon og relasjon til bærekraftig utvikling. I et intervju la miljøkjemikeren Michael Scoullos (Department of Chemistry, National and Kapodistirian University of Athens, Greece, pers. med. 02.07.15) merke til at mange foredragsholdere presenterte engasjert nye ord, nye begrep og nye modeller:

> "*Men undervisningen blir ikke nødvendigvis bedre av det, barn kan bli forvirret, og også lærerne. Det er viktig at alle vet hva det snakkes om. Naturfag eller «sciences» bør bety det samme for alle som arbeider med det eller mener noe om det*".

Betydningen av felles begrep ble også drøftet av Sadi Can Sönmez, en av ungdommene fra YRE (Young Reporters for the Environment), som skrev om kongressen i etterkant (Sönmez, 2015, Juli).

Ved kongressens avslutning i plenumet ble det understreket at det er handlinger, helst i felleskap, som vil smitte over, og at det er handlinger som lærerne skal fokusere på. En av konklusjonene var at samfunnet kan og bør stille krav til teknologien og vitenskap om å bidra med bærekraftige løsninger. På kongressen har teknologi og naturfag likevel vært litt i bakgrunnen. Dette inntrykket bekreftes under en siste intervju med en av konferansedeltakere, PhD student Anna Lehtonen fra Finland (pers. med. 02.07.15). Hun var storfornøyd med konferansen, men var skeptisk hvor vid det kan komme bærekraftige løsninger fra naturfag og teknologi. Hun bekreftet inntrykket at mange på kongressen ikke oppfattet naturfag og teknologi helt som del av det samme bærekraftige felleskapet.

Narrativ fra WEEC 2017 i Vancouver

På åpningen påpekte key note speaker Charles Hopkins (UNESCO Chair in Reorienting Teacher Education to Address Sustainability) at informasjon om miljø og klima er blitt lett tilgjengelig, troverdig, og pålitelig, men utfordrer oss når det gjelder hvordan utdanningen skal være. Ifølge Hopkins er det viktig å ha fokus på både miljøvern og en god, solid og bærekraftig økonomi, men han understreker,

> "*We cannot continue to consume as much as we do today, we need more sharing*"…"*environmental education is critical and has to try to raise a new focus on the skills needed for green jobs and sustainable lifestyles,…*".

Han etterlyste også ideer for utdanning for bærekraftig utvikling. Professor Julie Davis fra QUT (Queensland University of Technology, pers. med. 10.09.17), Brisbane, Australia, understreket Hopkins syn i intervjuet:

> "*I feel we have not come much further than at the Tbilisi Declaration, I feel a little depressed… but here is much energy on this conference*!"

Davis likte at barnehagefeltet var mye sterkere representert enn på tidligere WEECs.

Key note speaker Dr. Jeanette Armstrong (Canadian Research Chair in Okanagan Indigenous Knowledge and Philosophy) snakket om læring og utdanning i hennes kultur, Okanagan (Syilx) urbefolkningen. Hos Okanaganerne er det å være et menneske nært knyttet til kunnskap om ulike livssyklus og deres helhetlige sammenheng i naturen, og et krav om å være del av denne helheten og verne om den. Urbefolkningens syn på bærekraftighet innebærer innsikten i det som er nødvendig å vite for å overleve. Denne respekten for og verdsettelsen av kunnskap kan bli for utydelig innenfor dagens 'utdanning for bærekraftig utvikling', der den holistiske forståelsen er sterkere assosiert med sosiale aspekter enn med naturfaglig kunnskap. Okanagan folket har et spesielt forhold til steder. Et sted er under stadig forandring. Som mennesket må vi tilpasse oss til stedet vårt, og også til planeten vår. Ifølge perspektivet til denne urbefolkningen, så er læring og kunnskap det mest essensielle for å overleve,

> «*…you need to know! Otherwise, you cannot survive*!"

Kunnskap handler om forståelse av sammenhenger og konsekvenser, og naturen innebærer også etiske prinsipper.

Hovedformen for presentasjonene på hele konferansen var poster som ble utstilt tidsavgrenset under parallele gruppeøkter i ulike rom. De varierte poster utstillingene viste blant annet studier om lokale miljøtiltak som integrerer barn og unge, stedbasert, og online læring. Små barn kan for eksempel lære i felleskap med ungdommer (Lador, 2017).

Professor Wade Davis, key note speaker på den andre konferansedagen, fremhevet at alle kulturer er et svar på spørsmålet hvem vi er og hvilke etiske verdier vi har. Også Elizabeth May (leder av Green Party of Canada), snakket om verdier på den fjerde konferansedagen. Hun fremhevet dokumentene 'The earth charter' (Corcoran, 2004) og 'Laudato Si – On care of our common home' (Pope Francis, 2015) som viktige universale statements som understreker:

> «*We are in a climate emergency!*» and "*Human development is primarily of being more, not having more*".

May spurte hva som skal til for å oppnå forandring, og etterlyste en grunnleggende forandring av måten vi tenker utdanning på, og fremhevet: «*We need to be different people*!».

I intervjuet om hennes personlige inntrykk når det gjelder de sterkest representerte emnene på konferansen, svarte Savannah Steinhilber (School Program Leader, Biogeoscience Institute, Kananaskis, University of Calgary, Canada, pers. med. 12.09.17), at dette var det generelle fokus på miljøvern og kulturelt eller personlig tilknytning til et sted. Posterne som hun hadde sett tematiserte mest hvordan å engasjere barn og unge i bærekraftige tiltak. Steinhilber som selv viste en poster om utfordringene for naturfaglærere ved å undervise om klimaproblematikken (Poirier Hollander, 2017, September), fremhevet at hun synes det er vanskelig å se et skille mellom kultur, naturvitenskap ('science') og realfagsundervisning, men at både naturvitenskap og utdanning er deler av de kulturelle relasjoner til et sted eller land. Professor Julie Davis så en sterk sosialvitenskapelig orientering på konferansen, og konferansens co-organisator dr. David Zandvliet (Simon Fraser University, Canada, e-post med. 03.11.17) understrek betydningen av urbefolkningenes bidrag til bærekraftig utvikling. For Zandvliet bør 'science' plasseres ved siden av andre epistemologiske rammer, slik at vi får en holistisk tilnærming. Under den avsluttende plenumsdiskusjonen ble det spurt hvor mange av deltakerne som kom fra 'science' eller 'science education', og det viste seg at dette gjald nesten en fjerde del av alle i salen.

DISKUSJON OG REFLEKSJONER

Hvilken rolle spiller 'science education' på WEEC 2015 og 2017?

Del av den tverrfaglige helheten

Globalt felleskap og lokalt samarbeid for mer bærekraftighet var et hovedbudskap på både WEEC 2015 og WEEC 2017. Dette var i tråd med det fokuset som også FNs tiår for bærekraftig utvikling (2005-2014) hadde satt (UNESCO, 2005, 2012, 2014; Wals, 2009). De fire dimensjonene kom frem med sitt mangfold. Mens tidligere forskning har påpekt en overvekt av læring *om* naturen (Engdahl & Ärlemalm-Hagsér, 2014), så har den økologiske dimensjonen nå blitt en integrert del i en stor variasjon av fler- og tverrfaglige sammenheng. Figur 1 viser at det økologirelaterte emnet 'utendørslæring og naturopplevelse' var like sterkt representert som emnet 'bærekraftig økonomi' på WEEC 2015. 'Stedsrelatert læring' var et fokus som samlet omtrent en tiendedel av alle foredrag på WEEC 2015 (Figur 1), og var det andre prioritets tema i programmet for WEEC 2017 (Tabell 1).

Programmene til begge kongressene viste stor (tverr)faglig variasjon og bredde. Spesielt WEEC 2015 var tydelig inspirert av de 17 bærekraftsmål (UNESCO, 2030), med temaer som reduksjon av fattigdom (bærekraftsmål 1 og 2), grønne byer og økonomi (bærekraftsmålene 8, 9 og 11), og en sterk fokus på utdanning (bærekraftsmål 4), og også på globale (klima)utfordringene. WEEC 2017 valgte grønn design (bærekraftsmål 9 og 11), diversity, ethics and social responsibility (bærekraftsmål 1,2, 5,10,12, 16), urban ecosystems (bærekraftsmål 11 og 15). Hagelæring var et naturfaglig emne på begge kongressene (Tabell 1).

Læring for krisemestring

Armstrong sitt key note foredrag på WEEC 2017, kom med et interessant og, ifølge Hopkins og Davis, etterlyst impuls som belyste det store overlapp mellom urbefolkningskunnskap og naturfaglig kunnskap, og at begge utfyller hverandre. Ifølge Colucci-Gray (et al., 2013, s. 136) blir denne relasjonen

spesielt tydelig med tanke på urbefolkningers styrke på lokalkunnskap, mens det er et overvekt på naturfaglig (og digital) informasjon i mer overordnete og globale målestav. Selv om WEEC 2015 foredragene ikke hadde fokus på relasjonen mellom urbefolkningskunnskap og naturfaglig kunnskap, så ble denne relasjonen antydet i konferansens kopling mellom 'læring med digitale verktøy' og 'stedsrelatert læring' (to omtrent like sterkt representerte emner, se Figur 1), gjennom programtemaet 'sense of place in the digital age' (Tabell 1). Interessant for skolebarn var digitale spill om økologiske konsekvenser av miljøskadelige tiltak og handlinger (Borrelle, Frielick & Leuzinger, 2015, Juni) og om artskunnskap (Robinson & Robinson, 2015, Juni). Disse kan understøtte læring for å takle krisesituasjoner.

Hvordan tematiserer konferansene 'science education' for (små) barn?
Dialog mellom vitenskap og utdanning
Begge konferansene tok opp barn som første tema i programmet. WEEC 2015 sine ord "*Taking children seriously…*", inviterte til dialog mellom vitenskap og utdanning (Colucci-Grey et al., 2013), mens WEEC 2017 satt fokus på små barn (Tabell 1). Blant de likevel relativ få presentasjoner på begge konferansene som omhandlet 'små barn og bærekraftighet', handlet de fleste om hvordan barn og unge kan bli medaktører og beslutningstakere.

(Naturfaglige) konsepter
Mange foredrag omhandlet hvordan holdninger og (forbruker)adferd kan endres for å redusere vårt økologiske fotavtrykk. Bare enkelte foredrag handlet om barnas oppfatninger og forståelser rundt miljø og klimaforandringsproblematikken (Almeida & Brady, 2015, Juni), eller om barnehage barns artskunnskap og holdninger til dyr (De Niz Robles, Crispin, Ruiz Perez & Hernandez, 2017, September), eller om deres kunnskap om økosystemet (Okjong, 2017, September).

Hvordan fremtrer undervisning og læring om grunnleggende naturfaglige konsepter på disse konferansene?
Så vid det var overskuelig, så ble en begynnende forståelse av blant annet fornybar energi eller læring relatert til klimaforandring, lite tematisert innen barnehagefeltet, selv om det etterlyses større variasjon og flere perspektiver for små barns læring om bærekraftig utvikling (Ärlemalm-Hagsér & Sundberg, 2016).

Flere bidrag på begge konferansene hadde fokus på lærernes basiskompetanser. I tråd med mange tidligere referanser har Scoullos påpekt viktigheten av basiskompetanser for naturfaglæringen på alle utdanningsnivåer, også i barnehagen (Hjelmseth Hagen, 2013; Kallery & Psillos, 2001; Rambøll, 2015; Ottander og Sundberg, 2015, Juli; jf. Jensen & Sølberg, 2012; Kunnskapsdepartement, 2012; Scoullos & Malotidi, 2004; Sönmez, 2015, Juli). Figur 1 viser tydelig (med lave score for relaterte emner) at naturfaglig grunnforståelse har inntatt en marginal rolle på WEEC 2015. Det kunne blant annet forventes at flere av abstraktene som omhandlet 'bærekraftig livsstil' (det emnet som var hyppigst i fokus, se Figur 1), skulle også omhandle naturfaglig grunnforståelse, men dette er bare tilfelle for en liten del av dem. Vi har ikke informasjon til sammenligning fra WEEC 2017. Key note speakerne Salomone (WEEC 2015) og Armstrong (WEEC 2017) fremhevet den spesielle betydningen av naturfagene for verden vi lever i. I tverrfaglige sammenheng var biologifaget relativ godt representert på begge konferansene, på WEEC 2015 gjennom 'utendørslæring og naturopplevelse', og på WEEC 2017 gjennom tallrike utendørs-, hage- og stedrelaterte prosjekter. Likevel var det relativ få foredrag som konkret omhandlet barn og unges læring av (de relaterte) naturfaglige konsepter (Figur 1) (jf. Colucci-Gray et al., 2013).

Lokal og global tilnærming
Flere emner med sentrale relasjoner til FNs bærekraftsmål (UNESCO, 2015) var besjedent representert på WEEC 2015 (Figur 1), som for eksempel 'mat og ernæring'(bærekraftsmål 1, 2, 3), 'hagebruk' og 'bærekraftig landbruk'(bærekraftsmål 2, 12, 15), 'biologisk mangfold og økologi'(bærekraftsmål 13, 14, 15), 'økosystemer i og ved vann'(bærekraftsmål 6, 14), 'læring relatert til klimaforandringene'

(bærekraftsmål 13, 14, 15), 'kreativ og bærekraftig bruk av teknologi' (bærekraftsmål 7, 9, 11, 12, 13), 'søppelhåndtering' (bærekraftsmål 6, 11, 12, 14, 15), og 'læring om fornybar energi' (7, 9, 11, 12, 13, 14, 15). Svært lite i fokus var 'helse' (bærekraftsmål 3), og bare et foredrag handlet om hvordan elever kan få en 'biogeokjemisk grunnforståelse' av de globale miljøutfordringer (bærekraftsmål 4, 6, 7, 11, 12, 13, 14, 15) (Koutalidi & Scoullos, 2015, Juni). Fra WEEC 2017 var det ikke mulig å få en så detaljert oversikt, men heller ikke der var de 17 bærekraftmål eller grunnleggende naturfaglige konsepter spesielt i fokus. Både på WEEC 2015 og WEEC 2017 var foredragene som omhandlet 'læring om fornybar energi' i hovedsak rettet mot behovet, bevissthet og bygningsdesign, men lite om formidling av de bakomliggene naturfaglige konsepter.

SAMMENFATTENDE REFLEKSJON

Hvorfor og hvordan bør 'science education' utvikles videre, for å fremme naturfaglig arbeid med (små) barn og for å støtte opp om de 17 bærekraftsmål?

Når UNESCO (2015) har som mål å fremme utdanningen (bærekraftsmål 4), så er det ikke minst fordi det er - mer enn noen ganger før - en sammenheng mellom kvaliteten på utdanningen globalt og kvaliteten på miljøet. FNs bærekraftsmål mot 2030 (UNESCO, 2015) gir naturfagene, teknologien og 'science education' en viktig oppgave til å viderutvikle undervisningen, slik at barn og unge kan forstå verden og sin egen rolle i den. Det er viktig at naturfag stadig oppdaterer og fornyer sin viktige rolle, og at barn og unge blir bevisste den mangesidige betydningen som naturfag har for samfunnet (Bergem, Goodchild, Henriksen, Kolstø, Nortvedt & Reikerås, 2014; Rambøll, 2015) og ikke minst for bærekraftig utvikling (UNESCO, 2015).

Den Nordiske strategien for bærekraftig utvikling (Nordiska ministerrådet, 2013, s. 31) og Norges realfagsatsning frem til 2019 (Kunnskapsdepartement, 2015) inkluderer alle nivåer i utdanningen. Samtidig har både den norske læreplanen i naturfag (Kunnskapsdepartementet, 2013), og den norske Rammeplanen for barnehagen (Kunnskapsdepartement, 2017) satt spesielt fokus på bærekraftig utvikling. Disse føringene ønsker at de unge skal få en utdanning som gir dem etter hvert oppdaterte kompetanser som skal støtte opp om bærekraftig utvikling og fremover om de 17 bærekraftsmål (UNESCO, 2015).

Overgangen fra EE til ESD medførte en breiere forståelse av mangfoldige tverrfaglige aspekter, relatert til kultur, samfunn og politikk, og en styrking av de lærendes handlingskraft, kritisk tenkning og selvstendig 'citizenship' (cf. UNESCO 2012). Men etter at 'science education' mistet dominansen i 2007 (Breiting, 2009), viser den besjedne andelen av foredrag med spesifikk naturfaglige fokus i denne studien (Tabell 1), at fagområdet var nokså svak representert på WEEC 2015, der miljøkjemikeren Scoullos påpekte at

> "*mange foredrag ga informasjon om naturvitenskapelige realiteter, men få omhandlet hvordan vi kan få barn og unge til å forstå dem*".

Noe lignende gjelder for WEEC 2017. På begge konferansene ser 'science education' ut til å ha inntatt en mindre synlig og mindre konkret rolle innenfor den ellers svært positive utviklingen til mer tverrfagligheten, noe som også flere andre informanter bekreftet.

Kopnina (2012, 2014) ser en nedtoning av den økologiske pilaren innen ESD. Hun medgir at miljøproblemer først og fremst er sosiale problemer, in den forstand at årsakene og mulige løsninger er i hovedsak antropogene og kan tas tak i innenfor samfunnet. Men Kopnina advarer mot en overskygging av det økosentriske perspektiv, d.v.s. vern av naturmiljøet for sin egen del (jf. Næss, 1976). Kopnina (2014) konstaterer at overgangen fra EE til EDS har medført en bevegelse vekk fra en tidligere økosentrisk fokus til en sterkere antroposentrisk fokus, og hun argumenterer for en ny iakttagelse av den Belgrader Charter (UNEP, 1975) som understreker blant annet behovet for naturfaglige kunnskaper og ferdigheter.

Selv om 'science' kan ses på som en av mange epistemologiske rammer, så er så å si alle miljøargumenter basert på naturvitenskapelig kunnskap (Carson, 1962/2000, Yearley, 2014). Viten om ozonlaget, global oppvarming, artsmangfoldet, solpanel og isotopanalyse er basert på naturvitenskapelig og teknologisk forskning. En forståelse av disse sammenhengene blir mer og mer utfordrende og komplisert, både for eksperter, for (barnehage)lærere og for små barn. Men Colucci-Gray (et al., 2013) påpeker at nettopp en fokus på slik forståelse kan bidra til å fremme barn og unges kreativitet.

Ikke bare Charles Hopkins og Savannah Steinhilber stiller spørsmålet hvordan (barnehage)lærere kan arbeide med disse komplekse, og delvis vanskelige naturfag- og bærekraftrelaterte emner (jf. Qualter, 1996, s. 22 f). Det er viktig å gi barn og unge motivasjon for utforsking i både den tverrfaglige bredden og også den mer konkrete naturfaglige dybden, og det er viktig å formidle at tilegnelse av realfaglig kunnskap blir verdsatt. Det danske Science-kommune-prosjektet (2008-2011, Jensen & Sølberg, 2012) og den norske realfagsatsing (2015-2019; Bergem et al., 2014; Kunnskapsdepartementet, 2015; Rambøll, 2015) hadde eller har blant annet som mål å forbedre barn og unges kompetanse i realfag ved systematisk og helhetlig arbeid med faget fra barnehage til fullført grunnskole.

På WEEC 2017 understreket Armstrong at kunnskap og spesielt naturfaglig kunnskap har alltid vært helt nødvendig for å overleve. Urbefolkningsbarn har lært om økologien i nærmiljøet, om livssyklus og sammenhenger i naturen. Armstrong fikk frem at urbefolkninger faktisk har en veldig sterk fokus på naturfaglig kunnskap som den mest essentielle delen av den holistiske tenkningen (jf. Næss, 1976). Colucci-Gray (et al., 2013) påpeker at vitenskapelige fokus ofte er på det globale nivået, mens urbefolkninger har sine fokus på lokalt nivå. Barnehagen har i denne sammenhengen også sin styrke i sitt fokus på nær- og lokalmiljøet, der barn for eksempel kan observere artsmangfold.

Barn har til alle tider lært ved perifer deltakelse i felleskapet (Lave & Wenger, 1991, Rogoff, Mistry, Göncü, Mosier, Chavajay & Heath, 1993). Det har alltid vært en utfordring å videreformidle det som er nødvendig å vite for å (over)leve fra generasjon til generasjon (jf. Corcoran, 2004), og spesielt det som de voksne selv var usikre på eller ikke visste. Verdens mangfoldige prosesser og fenomener er full av usikkerheter, også for eksperter og forskere (Colucci-Gray et al., 2013). Usikkerhetene viser seg blant annet ved bruk og deling av naturressursene, ulikhet og urettferdighet, og enhver form for sosiale konflikter i verden (González-Gaudiano & Gutiérrez-Pérez, 2017), og også i relasjon til en sunn livsstil (Norddahl, Einardottir & Oskarsdottir, 2017), og barn er internasjonalt den mest sårbare gruppen i denne sammenheng. På WEEC 2017 var usikkerhet et programtema (Tabell 1), og May snakket i sitt key note foredrag om at verden er i en akutt nødsituasjon. Å forholde seg til usikkerheter og risiko, er blant nøkkelkompetansene for bærekraftig utvikling (UNESCO, 2017, s. 10), og for å nå de 17 bærekraftmål. I arbeidet med (små) barn, trenger ikke usikkerhet å være noe negativt. Læring for eksempel ute i naturen eller gjennom naturfaglige eksperimenter kan by på mangfoldige uforutsigbarheter som kan inspirere barna til utforskning og kreativitet og kan gi dem en begynnende forståelse for at de aktiv kan medvirke og påvirke fremtiden (jf. Colucci-Gray et al., 2013).

Spesielt for barnehagelærere er det blitt en større utfordring å hjelpe barna til å få en begynnende forståelse av naturfaglige og teknologiske sammenhenger i dagliglivet i dag, enn det var bare for noen tiår siden. Vind- og vannhjul for eksempel har vært vanlig å arbeide med i barnehagen. Men hvordan skal vi prøve å gi barnehagebarn en begynnende forståelse av solpanel når vi ikke selv helt forstår hvordan de virker?

En (begynnende) innføring i grunnleggende naturfaglige konsepter på alle utdanningsnivåer kan understøttes av en integrert dialog med eksperter (Colucci-Gray et al., 2013). Med sine helheltlige og tverrfaglige arbeidsmåter har barnehagen den beste forutsetning blant alle utdanningsnivåer for å videreutvikle tverrfaglig 'science education' for bærekraftig utvikling. Barnehagen er kjent med inquiry-basert læring (Sageidet, 2012), men ifølge Colucci-Gray (et al., 2013) er det viktig å vise barna veldig konkret, hvilke begrep eller konsepter som er i fokus, og utvikle sammen med dem hvordan en kan tilnærme seg dette begrepet eller konseptet, enten beskrivende, funksjonell, gjennom fagover-

kripende sammenhenger, i tidsperspektiv og/eller ved kreativ transformasjon (Colucci-Gray et al., 2013). Slike inquiry-prosesser kan være både spennende, kreative og lærerike for barna, og inspirere dem til metakognitiv tenkning (jf. Pramling Samuelsson & Asplund Carlsson, 2003) og til medvirkning. For eksempel kan vi hjelpe barna å se nøye på detaljer og samtidig skaffe seg oversikt ved å relatere til større sammenheng og helheter. Nøkkelord og begrep i disse sammenheng vil stimulere barnas språkutvikling og er også didaktisk betydningsfulle for hvordan innholdet og budskapet formidles. Det er også svært viktig med verdsettelse av hvert enkelt barns deltakelse, uttrykksmåter og bidrag, og med inkluderende etiske holdninger (jf. Sageidet, 2012). (Barnehage)lærere bør våge å bruke tid sammen med barna på bærekraftig utvikling generelt og spesielt på forståelsen av sammenhenger, (biogeokjemiske) kretsløp, prosesser og konsepter i naturen og hvordan mennesker påvirker dem. Noen barn og unge kan også bli inspirert til å velge naturfag og teknologi som deres fremtidige bidrag til å forbedre verden (jf. Rohaan, Taconis & Jochems, 2008; Turmo & Østergaard, 2011).

KONKLUSJON

Studien gir et innblikk i hvordan 'science education' og relaterte emner har vært representert på WEEC 2015 og WEEC 2017, som viste til et inspirerende mangfold av forskning, tiltak og strategier for å videreutvikle utdanning for bærekraftig utvikling. Med utgangspunkt i kriteriene til Colucci-Gray, viser studien at 'science education' har orientert seg mot bærekraftighet på disse to konferansene, ved en utvikling i retning tverrfaglighet, lokale og globale tilnærminger, og dialog mellom vitenskapen og utdanningen. Å gi (små) barn og unge en begynnende forståelse av naturfaglige konsepter, var likevel nokså lite i fokus på begge konferansene, og dette gjaldt også læring relatert til fysikk eller biogeokjemiske kretsløp, selv om naturfagene og teknologi har fått en økt betydning for å nå FNs bærekraftsmål.

Ved å sette fokus på usikkerhet og urbefolkningsperspekiver, har WEEC 2017 fremhevet behovet for å finne nye veier mot mer bærekraftighet. Innenfor en holistisk og mer økosentrisk orientering, kan dagens naturfagundervisning hente inspirasjon fra urbefolkningers strategier til å mestre kriser og til å overleve, og fra deres verdtsettelse av naturfaglig kunnskap. Naturfagundervisningen kan videreutvikles til å støtte opp om FNs bærekraftsmål ved å introdusere barn helt fra barnehagealderen – gjerne i dialog med eksperter - til (enkle) grunnleggende naturfaglige konsepter som barn etter hvert kan bruke kreativ til å forstå fenomener, prosesser og sammenheng i alle fagfelt, og til å bli informerte beslutningstakere og aktive deltakere i et bærekraftig samfunn.

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Children's Understandings of Environmental and Sustainability-related Issues in Kindergartens in Rogaland, Norway, and Queensland, Australia

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ABSTRACT

This study compared the understandings of environmental and sustainability-related issues of 4-5-year-old children in kindergartens in Rogaland, Norway, with understandings of similarly-aged peers in kindergartens in Queensland, Australia. Twenty structured conversations with children were undertaken in each country. A qualitative content analysis of these conversations with regard to their contexts elucidated how children experience everyday activities related to environment and sustainability and what they think about adult attitudes and behaviors in relation to these topics. Most of the children in both countries enjoyed being outside in nature; however, they had limited understandings of sustainability-related terms. The Norwegian children seemed to have more frequent and diverse opportunities to explore and to get in touch with nature, while some Australian children had quite sophisticated ideas about sustainability-related relationships and interconnections. Positive adult attitudes and behaviours combined with inquiry-based and language stimulating learning experiences, situated in appropriate social and outdoor contexts, offer potential to promote children's understandings of sustainability.

Keywords: children's understandings, sustainability, environment, kindergarten, Norway, Australia

INTRODUCTION

Sustainability is defined as a "*development that meets the needs of the present without comprising the ability of future generations to meet their own needs*" (WCED, 1987). Research in early childhood education for sustainability (ECEfS), especially since the United Nation's Decade for Education for Sustainable Development 2005-2014 (UNESCO, 2012), underlines the need to acknowledge and to follow up children's thoughts, questions, ideas and understandings related to sustainability (Ärlemalm-Hagsér & Sundberg, 2016; Ärlemalm-Hagér & Elliott, 2017; David & Elliott, 2014; Engdahl, 2015; Heggen, et al., Accepted/2019). Children can and do play important roles in contributing to a sustainable society, both as current and future agents of change (Bell, 2016; David & Elliott, 2014; Heggen et al., Accepted/2019). The UNESCO Agenda 2030 aims to empower children and youth, and to provide them "*with a nurturing environment for the full realization of their rights and capabilities*" (UNESCO, 2015, targets 23. and 25.).

Earlier research have revealed young children's perspectives on specific topics and understandings of concepts related to sustainability (Borg, 2017; Hammond, Hesterman & Knaus, 2015; Kahriman-Öztürk,

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Olgan & Güler, 2012; Kos, Jerman, Anzlovar & Torkar, 2016; Palmer & Suggate, 2004). A further uncovering of young children's perspectives may provide kindergarten teachers with valuable feedback related to their sustainability related programs, and may assist in the development of memorable activities and practices that ultimately strengthen children's active participation in sustainable development initiatives both now and in future. This study aims to discover kindergarten children's experiences of everyday sustainability-related activities, and their perspectives on sustainability-related issues.

This study compared the understandings of sustainability-related topics amongst young children (4-5-year-olds) in two different kindergarten environments, one from Rogaland, Norway, and the other from Queensland, Australia (Sageidet & Davis, 2014). Based on guided conversations with twenty children from each of the two countries, this study elucidated how children experience and understand everyday activities related to sustainability, what they think of adult attitudes and behaviors in relation to sustainability, and how the children's feedback may be used to develop and follow up on sustainability-related educational programs in the kindergarten.

CONTEXTUAL BACKGROUND

Norway and Australia

Both Norway and Australia have a child-centered approach to early childhood education, based on sociocultural theory (Vygotzky, 1986), that views the child as an active, capable and competent change agent (Weldemariam, et al., 2017). Both national early childhood education curricula meet international standards outlined by the OECD (2006).

Each countries' Early Childhood Education Frameworks also have clear and explicit integration of sustainability, including values related to social responsibility, respect for and care of the environment, and the embedding of sustainability in daily practices (DEEWR, 2009; Ministry of Education & Research, 2017).

However, the Australian Framework (DEEWR, 2009) deviates from the Norwegian document by recognizing children as future citizens, while 'sustainability as a core value' is specific to the Norwegian Framework (Ministry of Education & Research, 2017). In both countries, many kindergartens are working more-or-less with sustainability-related learning activities, and along with their comparable economic status and standards of living, these countries have similar challenges for developing of such practices (David & Elliott, 2014; Sageidet, 2016).

Norwegian kindergartens have long traditions of outdoor education (Fjørtoft, 2001), and some are inspired by the philosopher Arne Næss' deep ecology philosophy (Næss, 1989, Sageidet, 2014a). Sustainability practices such as recycling, supporting projects for children in developing countries, or specific projects for the 'green flag' certification, have been strengthened along with the Norwegian government´s strategy for the promotion of science education, 2015-2019 (Ministry of Education & Research, 2015; Sageidet, 2014a).

In kindergartens in Queensland, Australia, recycling and gardening with the children are common practices, while activities in nature outside of the kindergarten boundaries perhaps occur less frequently, though this is changing as movements such as bush preschools gain traction (Elliott & Chancellor, 2014). In the often drier Queensland climate, kindergartens, preschools and daycare services, and the curriculum documents that support these educational programs, commonly facilitate water play, and also encourage the children to be aware of water being in short supply (Sageidet, 2014b). 'Belonging, being and becoming' is Australia's first ever Framework for early childhood education (DEEWR, 2009). It builds on an inquiry based learning approach, facilitating learning experiences that enable problem solving, exploring, expression of children's own ideas and theories, and investigation of complex concepts (DEEWR, 2009, p. 35; Sageidet, 2014b).

Children's Understanding of Environmental and Sustainability-related Issues

Research on young children's understanding of specific topics or concepts related to sustainability and the environment is increasing, but still somewhat limited. Kambouri (2016) underlines the importance for teachers to understand children's (pre)conceptions and notions, in order to help them to develop their understandings. A longitudinal study (Palmer, 1995, Palmer & Suggate, 1996, 2004) asked 4-10-year-old children about their understandings of sustainability-related topics including waste materials and global warming. They found that the youngest participants demonstrated both basic understandings and misconceptions. Interviews with 36 kindergarten children about their ideas related to the economic, social and

ecological dimensions of sustainability (Kahriman-Öztürk, Olgan & Güler, 2012), revealed that the children had difficulties understanding concepts such as: "rethink", "reflect" and "redistribute". However, the children did understand more concrete concepts such as: "reduce", "reuse", "recycle", and "respect". Hammond, Hesterman, and Knaus (2015) discussed poverty and differences in the content of people's refrigerators with 6-7 years old children. The children's theorizing about the reasons for peers' poverty revealed clear associations between work and money and a family's capacity to provide food. Interviews with 5-6 years old children (Kos, et al., 2016) revealed an initially low understanding of connections between actions, for example, walking instead of driving, or turning off the tap, and their effect on the environment. However, the children developed their understandings as a result of being involved in activities that helped them to make the connections.

THEORETICAL FRAMEWORKS

Participative and Active Learning

This study builds on social-constructionist theories (Lave & Wenger, 1991; Vygotzky, 1986) that underline the importance of practical activities and social contexts to promote learning processes in young children, including learning processes for sustainability transitions (Bell, 2016). Formal, informal and unintended contextual learning occurs through participation in social contexts, and the curriculum can be visible through children's perceptions. Children seek meaningful relationships and try to make connections to their prior knowledge (Lave & Wenger, 1991; Vygotzky, 1986).

Human's and children's 'understanding' entails having a continuously developing mental model, or cognitive structures, that represents the structure of a concept or phenomenon and can be transferred from one situation to another. A mental model is a representation that provide a workspace for mental operations, and can generate predictions about the world (Halford, 2014, p. 238). Vygotzky (1986) emphasized the importance of language in this connection, while Hope, Schachter, and Wasik (2013) underlines that communication with engaged adults contributes to increase the vocabulary of even very young children. Listening to the children's voices, appreciation, acknowledgment and respect is necessary to ensure children's agency and active participation in decision-making and action taking (Engdahl, 2015; Engdahl & Rabušicovás, 2011; Johansson, 2011). Children have distinct perspectives or frames of reference, and unique differences, and the concepts they understand, have a strong influence on their developing of strategies, skills, and competences (Halford, 2014). Children's perspectives are essential to kindergarten teachers' reflections on their own work, and to the development of inclusive activities and practices that are understandable for children (Davis & Elliott, 2014).

Children as Global and Ecological Citizens

Global citizenship education is a political, ecological, economic, social and cultural way of understanding, acting and relating oneself to others and the environment in day-to-day contexts, based on universal values, responsibility, the youths' active participation, critical thinking, and a sense of belonging to a broader local and global community and common humanity (Lee & Fouts, 2005; UNESCO, 2014). The concept includes cognitive skills, socio-emotional skills, and behavioural skills for humankind to learn how to live more sustainable on this planet, and outlines a holistic and transformative approach (Bell, 2016; UNESCO, 2014). The UNESCO (2014) document on 'Global citizenship education', outlines a holistic approach, and underlines the global community's responsibility to preserve the planet Earth (UNESCO, 2015; cf. Næss, 1989). As members of the ecological system of the planet, together with all other biotic participants, ecological citizens are critical of the ways how humans use and share resources and recognizes intergenerational equity issues (van Steenbergen, 1994; Dean, 2001; cf. WCED, 1987; UNESCO, 2015).

The literature relates children's environmental development to experiences and sustainability-related learning activities in nature (Ärlemalm-Hagsér & Sundberg, 2016; Davis & Elliott, 2014; Fjørtoft, 2001). Thus, children with an active identity as ecological citizens may feel an initial sense of belonging to our planet, including the more-than-human world, and may develop a desire of care, solidarity, curiosity, and knowledge (Bergersen, 2016; Davis & Elliott, 2014; Heggen et al., Accepted/2019; Weldemariam et al., 2017). This may promote children being and becoming active and informed members in a sustainable society (Heggen et al., Accepted/2019). Ecological citizens have the right that provide for the protection of the individual against the effects of pollution and environmental degradation (Dean, 2001; UNESCO, 2015). According to Lave and Wenger (1991), 'newcomers' (for example children) in a community of learners, have a role as agents of change, both on the level of personal development through engaging in existing practices, and through the establishing

of their own identity as future members of the community (Lave & Wenger, 1991, p. 115). This community may be the group in the kindergarten, or the broader community of global ecological citizens. Heggen et al. (Accepted/2019) explored children's ecological citizenship through an interdisciplinary focus on sociocultural activities in nature, inquiry based social and ecology learning, play, curiosity, children's literature, and gardening as a local possibility for social, ecological and sustainability learning (cf. Bell, 2016; Desmond, et al., 2004; cf. Sageidet, 2014b).

METHODOLOGY

Research Question

This study sought to explore the research question: How do 4-5-year-old children from Rogaland, Norway, and from Queensland, Australia, experience and understand sustainability-related topics and activities in their kindergartens?

Study Process and Data Collection

This qualitative study involved 40 guided, structured conversations (Clark, 2017; Clark et al. 2014; Mayring, 2014) with 20 children aged 4-5-year-old from three kindergartens in Rogaland, Norway, and 20 children from three preschools in Queensland, Australia. Both preschools and kindergartens are referred to as "kindergartens" for this study. All the participating kindergartens had a focus on sustainability, including recycling and gardening programs. Regarding research participation, the centers sent out information to parents, who were invited to discuss and decide, together with their child, whether to give their permission to participate in an interview or not. The study, the information material for parents, and a conversation guide has been approved by the Norwegian Center for Research Data (NSD), and the Australian University's Human Research Ethics Committee (UHREC).

The researchers understand themselves as co-learners, embedded in their own sociocultural framework, when spending time with the children in their kindergarten settings ahead of the conversations, when listening to the children, as well as during the data analysis (Clark, 2017; Clark et al., 2014; Vygotzky, 1986).

One of the Australian researchers conducted the conversations with the children in Australia, while the Norwegian author conducted the conversations with the children in Norway, both using a conversation guide (see 'Methods and analysis'). The researchers spent considerable time with each child for becoming acquainted prior to the guided conversation, and they respected each child's agenda in relation to the duration and location of the conversation. Each conversation with each child lasted approximately 20 minutes. Each child met the researcher in a known setting in her/his kindergarten, together with a known kindergarten teacher. Each child was introduced to the study's purpose and to the use of audio recording. If any signs of discomfort for the child were recognized for example feelings of stress or anxiety, or inconvenience for giving up time from play, the conversation would be terminated. The child could withdraw at any stage of the research process. The children's responses were audio-recorded, and later transcribed under pseudonyms. All information was handled confidentially and individual identifiers were permanently removed after the data collection. The data were collected from 2014 to 2016. The kindergarten staff contributed with organizational help, but this study did not consider any information they gave related to the interview questions, because the intent of the conversations was not to "check" whether the children's responses were "right" or "wrong" (cf. Kahriman-Öztürk, Olgan, & Güler, 2012; Miller et al., 2014).

Methods and Analysis

This study used a structured conversation guide with questions, while the phrasing could vary in each conversation (cf. Mayring, 2014, p. 57). Key areas for ethical considerations include the active listening to, and respecting the children's verbal and nonverbal individual expressions and reaction; the rephrasing of questions if necessary to make them understandable for each child; paying close attention to adapting the conversation context to ways that seem to make sense to and be comfortable to each child (Clark et al., 2017). For example, some children preferred to 'guide' the researcher to specific places during the conversations.

All 40 conversations were analysed by use of directed and summative content analysis (Hsieh & Shannon, 2005). In an approach to further develop fragmented earlier knowledge, the study explored qualitatively the contextual use of words and the conversations' content, thereby, including quantitative aspects and numerical data, and their underlying meaning (Hsieh and Shannon, 2005; Mayring, 2014). The study tried to be aware

Table 1. Overview of some of the children's answers

	Norwegian children			*Australian children*		
	yes	**no**	**ind**	**yes**	**no**	**ind**
Do you like to be outside?	13	4	3	13	5	2
Do the adults in your kindergarten like to be outside?	17	1	2	16	1	3
Do your parents like to be outside?	14	3	3	13	4	3
Do you know what rubbish is?	19	1	-	20	-	-
Do you sort or collect rubbish in your kindergarten?	13	5	2	17	2	1
Do you sort or collect rubbish at home?	10	4	5	15	1	3
Do you think we should try to use less water?	11	7	2	16	4	-
Do you think we should try to use less paper?	6	7	7	12	5	3
Do you think we should try to use less electricity?	10	4	6	14	4	2
Do you have a garden in your kindergarten?	13	7	-	20	-	-
Do you know the meaning of the word "compost"?	3	16	1	12	7	1
Do you separate compost in your kindergarten?	8	5	7	13	1	6
Do your parents take care of nature?	10	4	6	16	1	3
Can children take care of nature?	10	9	1	14	1	5

(Abbraviation: ind = indefinite; that is to say the children didn't know or didn't answer or both)

of the researchers' preunderstandings and preconceptions, that is to say their professional and cultural perspectives and personal biases, including (unconscious) expectations and beliefs, and power resources (Mayring, 2014, p. 49; Bae, 2005). These may influence the reflective act of interpreting (Mayring, 2014).

Within a descriptive qualitative research design (Mayring, 2014), the themes 'being outside in nature', 'recycling and conservation', 'garden use and composting', and 'learning about nature and taking care of nature', derived as deductively-formulated categories from the researchers' perspectives on the theory of intertwined ecological, economic and social dimensions of sustainability (UNESCO, 2012), inspired by earlier studies (Kahriman-Öztürk, Olgan & Güler, 2012; Mayring, 2014, p. 12; Palmer & Suggate, 2004). Inspired by the same earlier studies, in addition to the researchers own practice observations, theme-related questions were devised for the conversation guide (cf. Clark, 2017), addressing sustainability in children's everyday life in their kindergartens, including some home settings. Thereby, kindergarten and home were acknowledged as interrelated parts of the children's everyday life and sociocultural contexts (cf. Vygotzky, 1986).

These theme-related questions (see 'Analysis and discussion') were then used as subordinate coding categories for the analysis. The three-step analysis process started with a thorough familiarizing with the data through multiple reading in order to understand the children's experiences and perspectives, and to identify 'deep' information from the personal conversations (Creswell, 2005). In a second step, the predetermined categories were critically re-checked, considering the data and the (revised) theory, and extended by giving new codes to conversation units that could not be categorized (Hsieh & Shannon, 2005; Mayring, 2014). During the final step of analysis, by working through and coding the transcribed conversations, another focus was set on identifying content-related arguments, while possibly procedurally-emerged arguments were critically reevaluated, to maintain validity (cf. Mayring, 2014, p. 41). The results from Rogaland, Norway, were then compared with those from Queensland, Australia, with the researchers being aware that this directed approach may imply a tendency to find theory supportive evidence rather than non-supportive. Also, some children might feel motivated to answer in a certain way, to please the researchers (Hsieh & Shannon, 2005; Mayring, 2014).

The results were presented in a form of brief sketches, similar to narratives (Chase, 2013). In order to provide an overview, the children's positive or negative responses to some of the questions are summarized and visualized in a table (**Table 1**).

RESULTS AND ANALYSIS

Theme 1: Being Outside in Nature

Questions: Do you like to be outside? What are you doing outside?

Most of the Norwegian children liked to be outside, and thought that the adults in their kindergartens and their parents would also like to be outside (**Table 1**).

To elaborate on the data from the Norwegian children, Sondre, Brage and Solveig definitely did not like to go for a walk. Sondre explained that this was boring and that he gets tired and sore feet. He preferred to go to a museum or to the beach. Solveig preferred to be inside, even though she attended a nature kindergarten. Howard liked to be outside, because then, "We can do something more fun, and we can do just what we like to do". Nine of the children enjoyed being outside because they can do it together with friends. Torbjørn is ambivalent to going for walks, since he then may not be with friends. He preferred to have a popcorn party. Tobias did not like being outside because it is cold. He did not like walks to the woods, because he is afraid of falling off a tree. Four boys and one of the girls especially liked to climb trees. Håkon liked to pick flowers and to find rats in the woods. Torbjørn said, "I like to go to the beach, to the sea, for to catch shrimps and fish". Howard remembered from an excursion, "There was something which looks like a bird leg, but it was not, it was bird dropping, and that I did not liked so good".

Five of the 20 children described a walk, an excursion or a boat trip as their favorite activity, for six of the children this was birthday parties, while the others mentioned cycling, swinging, hopping, climbing in trees, playing with sand or a friend, preparing food, drawing, collecting, sorting, making soap bubbles, reading, and having school preparation activities. For Howard a drama activity was his favorite, when he and a friend of his were riders. For Ingrid and Solveig their favorite thing to do was the recent fire emergency trainings in their kindergarten. Tuva said that her parents like to cycle with her outside, while most of the Norwegian children had little to tell about their parents with regard to outside activities or preferences.

Most of the Australian children liked to be outside and thought that the adults in their kindergartens and their parents would also like to be outside (**Table 1**). Sally liked running and skipping outside, but she did not like the sun getting in her eyes when she was looking at the sun. Melvin liked playing outside, with bikes or hide and seek. Susan liked picking flowers. Hannah preferred to go for a walk when she is outside, while Lizzy liked jumping. Oliver liked to make a special rocket outside, Evelyn and Sarah liked to make volcanoes in the sand pit, while Jacob liked to find fossils in the dirt. Edward is afraid of the lizards outside, "because they bite you".

Favorite outside activities for seven of the 20 Australian children included playing with games, sand or water play, and painting. Peter liked best to work with wood; Evelyn liked to play by the trees, while Oscar and Henry liked best to build bush cubby houses. Mary and Lizzy liked helping and tidying up. Writing, looking after snakes, picking up rubbish, watering the garden, and flushing the toilet were favorite activities for five other Australian children.

Three of the Australian children believed that the adults in their kindergarten like fresh air, trees, and doing the garden. Susan told that her parents prefer to be outside or inside, respectively. Seven of the children told that their parents like to play together with them outside. Henry told that his parents like to move rocks and cut off tree branches together with him. Five children thought that their parents like to work in the garden. One of them told that her mother uses to put clothes on the line outside. Peter commented that his father likes to be outside because he always thinks about building something.

Theme 2: Recycling and Conservation

Question: Do you know what rubbish is?

Nearly all of the Norwegian children could comment when asked about rubbish (**Table 1**), and nine answered that rubbish is 'what we put in the bin'. Other suggestions were: paper, damaged or ugly things, cardboards, food, corks, diapers, yoghurt, glass, old socks, and old fish. Howard explained, "Rubbish is something that we can throw into the bin, so the removal van will come and put it into a rubbish machine, so it gets away". Mette explained that rubbish is "something which animals cannot accept... Fishes does not bear plastics". Two boys answered that rubbish is something dangerous for nature. Solveig from the nature kindergarten stated, "those who throw rubbish on the floor, have to pick it up again".

All of the Australian children knew about rubbish (**Table 1**), and ten associated rubbish with plastic, while six children referred to boxes. Other suggestions were: straws, food, banana skins, orange skins, tin things, glass, milk and bottles. Lizzy stated that rubbish is "stuff that you don't use any more. And you put them in the trash cans, and then they get used for something else". Melvin said, "rubbish is to recycle…". He explained that you can make paper into new paper. Two of the Australian children believed that rubbish is something people don't like or don't' use. Susan explained, "rubbish can blow away in the wind and go into the water and then it will flow on top and a turtle might eat it". Oliver pointed out that "plastic bags…can make creatures very sick in the water, in the sea or the lake… don't give them to animals". Henry told, "*It's like when you get*

some food and it's covered with something or you've got something and there's like a wrap around it. And when you're at the sea and you've got a plastic bag, don't drop it in the sea….If the animals drink it or eat it or go near it, they can die".

Question: Do you sort and collect rubbish in your kindergarten and at home?

More than half of the Norwegian children answered positively to this question (**Table 1**), but only few of them had further comments or explanations to this question. Alma explained, "yes, when we have had group time, … metal shall be collected, not into the same bin, …we have had many [different] bags… [but] we put everything in the same bag".

Most of the Australian children said that their kindergartens sort and collect rubbish (**Table 1**). Eleven of the children associated the question with recycling. Three of the children told that they have a worm farm in their kindergarten. Sally explained that her kindergarten's worm farm is for scraps, and they have chicken bins for crust, a recycling bin for paper and a rubbish bin. Hannah reported that they do not have different bins at her kindy, but that the rubbish "gets recycled around". Hannah told about her home; "last week I helped the turtles because there were some rubbish in the sea and we got the rubbish quickly". Susan told that "a truck comes along and picks up the bin, …"

Question: Do you think we should try to use less water, paper, and electricity?

Table 1 gives an overview of the Norwegian children's answers. Tuva told that her mum and dad used to say "don't use all the water". Mette told, "we drink water from the sea, and there is a lot of salt in the sea, and so suddenly, there will be no sea longer, and so we will not have water any more". Solveig told, "in our family, everybody should have a shower, but Emma used all the warm water, so the others had to have a shower with cold water….but the water is never empty". Elisabeth said, " if the water is empty, so we do not have water to drink. … When we have had a shower, the electricity had gone, so mum could not have a shower".

Sondre and Ingrid pointed out that we need electricity for the light and the iPad. A boy said, "Electricity is just going on". Alma and Torbjørn associated this concept with saving teddy bears or sweets, respectively. Brage said that his mum saves money for a house. Solveig explained that when we use all of the battery, there will be nothing left, and we do not have any electricity any more.

Table 1 gives an overview of the Australian children's answers. Alice explained, "We have to save the water and the electricity because we have to pay for it". Sally said, "We should save the electricity… Because you might waste a lot of water and you might watch a lot of TV". Evelyn explained, "we should not waste water because then you'll die", Sarah, Jacob and Lizzy thought about saving food for to eat it later. The Australian children had less comments on this issue than the Norwegian children.

Theme 3: Garden Use and Composting

Question: Do you have a garden in your kindergarten, what grows there, what do you like to do there?

A numerical summary of the Norwegian children's answers to this question is also shown in **Table 1**. Some children from the same kindergartens gave different answers to the question whether their kindergarten had a garden. All but two of the children from Norwegian kindergartens spoke about the plants in their kindergarten gardens: flowers (6 answers), leaves (5 answers), plants (3 answers), redcurrants (2), plum and apple trees, carrots, cress, tomatoes, and sunflowers. All but one of the children said that they liked to be in the garden, but four children did not answer. Eleven of the children mentioned watering the plants, nine of the children mentioned planting, and five of the children mentioned playing as their favorite activities in a garden. Torbjørn said that he likes to eat seeds.

All of the 20 Australian children knew that they had a garden in their kindergarten (**Table 1**). In these gardens grew: strawberries (8 answers), tomatoes (5 answers), carrots (4 answers), lettuce (3), bananas (3), pineapples (2), blueberries, flowers, radishes, zucchini, corn, oranges, beans, and parsley. Apart from one child, all children expressed that they like to be in these gardens. Susan, Alice, Jacob, and Howard said that they liked to play in the garden. Hannah liked to work in the garden, she told, she likes to "put seeds in and put water". Evelyn and Mary also like planting and watering. Sarah said that she likes "dig holes for the plants". Edward liked to help with the garden. Kate and Isabel liked to pick flowers and tree branches. Lizzy told about a chicken garden at her kindergarten, "They grow eggs, but it's not like plants". Sally told, "I like watering and I like to collect eggs". Peter and Oscar said that they liked patting the chicken and collecting the eggs.

Questions: Do you know the meaning of the word "compost"? Do you separate compost in your kindergarten or at home?

Only three of the Norwegian children knew the term "compost" (**Table 1**), while four of them tried to provide an answer but revealed a misunderstanding. Stian described compost as "old leaves and old food". Hilde explained compost as "such glass pieces, bad fish". Less than half of the children knew that their kindergarten separates food garbage (**Table 1**). Ingrid commented that she has planted carrots and tomatoes at home. She likes to play and to cycle in the garden, and having fun.

Twelve of the Australian children shared comprehensive understandings of compost, and thirteen of them reported that their kindergarten separated compostable materials (**Table 1**). Melvin defined compost as, "It means you put stuff on the garden". "It means that you can put in onto plants and they stay alive," answered Alice. Henry and Lizzy associated compost with food scraps. Sally explained, "I put [food scraps] in the compost…worms eat them and make worm juice…It makes the garden grow". Peter explained, "Worms eat it, Worms live in compost….we put it around our banana trees…". Eight other children related the worms and worm bin with compost. Susan, Alice, and Jacob explained that c**o**mpost gets into dirt.

Theme 4: Learning about Nature and Taking Care of Nature

Question: How do you think nature can be destroyed?

Most of the Norwegian children had no suggestions about how this could happen. Several children associated the question with picking up waste/not to throw away waste (in the woods), or with collecting bottles. Four children associated the question with trees that can fall down, three children with thunder, and one with fire. Jonathan knew that nature gives us air to breathe. Two of the children said, "people can be damaged".

Five of the Australian children answered that this could happen if nature is 'hit' or if people hit other persons. Three children related this question to rocks, and three to rubbish, and one of them said that "rubbish might blow into the water and turtles might think that it might be a jellyfish and they just eat it. And it might get stuck. And they'll just flow up to the very top of the water, and then they'll die". Sarah answered "and Lizzy said that this is "like if a bad guy […] have a gun and starts shooting".

Questions: Do your parents take care of nature? How do they do this?

Ten of the Norwegian children thought that their parents do take care of nature (**Table 1**). One of the boys said that his parents put things in the bin, and one of the girls spoke about how her parents do take care of nature by fishing together with her. She said "children are able to fish …".

Sixteen of the Australian children thought that their parents do take care of nature (**Table 1**). Two of the children associated this question with their parents work. Melvin said that his parents make the dinner, Edvard said that his parents pack away his toys, and Oscar said that his parents clean up. Three of the children answered that their parents would do some kind of garden work. Rose said that her parents, "like to help people, and [her] dad is a lifesaver". Susan pointed out that her parents, "when [a named relative] is dead, … are going to his grave and stick flowers on it". Henry, Kate and Isabel answered that their parents do take care of them.

Question: Can you tell me about anything you have learned about taking care of nature?

Only five of the twenty Norwegian children told what they had learned, for example names of trees, information about the woods, animals, poison fruits, how to pick up garbage, how to water plants, and how to feed cattle. None of the children would like to – or were able to provide any the details.

Fifteen of the twenty Australian children answered this question, providing examples such as: growing trees, to "make sure that [the environment] gets water and sun", don't step on plants, cleaning up, putting the toys where they are supposed to be, don't throw stuff at windows, and not putting rubbish on the ground. Three girls had learned about taking care of people. Isabel explained, "when people are doing naughty things, I just get them to stop". Ten of the Norwegian, and 14 of the Australian children thought that children themselves could take care of nature (**Table 1**).

DISCUSSION

Children's Experiences of Being Outside in Nature

There is a very similar distribution of outdoor versus indoor preferences among the children of both countries, in spite of different climates, cultures and histories. Most of the children in this study liked to be outdoors, but some children did not like it. The Norwegian children made more comments about longer walks outside of the kindergarten, and some of them did not like it, possibly because they have uncomfortable experiences with such walks. Kindergarten teachers should acknowledge children's unique differences, emotions, personal levels of mastery, and possibly different geographical or cultural frames of references about nature (Henson, 2003; Sageidet, Almeida, & Dunkley, 2018), and should help each individual child to develop her/his own personal relationship to nature and the outdoors (Fjørtoft, 2001; Henson, 2003; Ministry of Education & Research 2017). Several children from both countries emphasized being with friends and having fun as important in connection with outside activities.

Many Norwegian kindergartens have a strong focus on nature and outdoor activities (Fjørtoft, 2001, Sageidet, 2016), and children spent a lot of time outside. The outdoor activities, mentioned by the Norwegian children – such as climbing trees, finding rats or bird droppings, catching shrimps and fish, and picking flowers - seem to reflect that they have many and diverse opportunities to explore, and to be closely in touch with nature. This Norwegian tradition may inspire kindergartens, independent of country, climate or urban versus rural locations, to provide children with more opportunities to connect with nature and thereby to the more than human world (Næss, 1989; Sageidet et al., 2018; Weldemariam et al., 2017).

Playing with games, sand or water, and looking after snakes, are among the favorite outside activities for the Australian children. Some Australian children's statements such as making "special rockets" and "volcanoes", finding "fossils" or "working with wood", "picking up rubbish", and "helping and tidying up", may give the impression that the outdoor activities in Queensland's kindergartens possibly have a somewhat stronger relation to science learning and adult guidance (cf. DEEWR, 2009).

From a holistic, interdisciplinary and social-constructionist perspective, all of the 40 children's personal preferences have potential to help develop sustainable understandings (Bell, 2016; cf. Vygotzky, 1986; UNESCO, 2012, 2014). While putting their preferences in action, the children get opportunities for language development, problem solving, and the formation of thought constructs and cultural understanding (Hromek & Roffey, 2009; cf. Lave & Wenger, 1991). Some children's favorite things to do are exciting activities such as making soap bubbles, and having parties, drama play and fire emergency training. Hromek and Roffey (2009) explain that there is a "natural affiliation between children, play, and the desire to have fun" (Hromek & Roffey, 2009, p. 626). Social and emotional learning is related to well-being, an issue that is addressed by the third sustainable development goal (UNESCO, 2015), and may be related to the development of values, attitudes and everyday behaviors through global citizenship education (Hromek & Roffey, 2009; Lee & Fouts, 2005; UNESCO, 2014).

Children's Understandings of Recycling and Conserving

The children from both countries showed a fairly complex understanding of rubbish. About half of all children interviewed seemed to have an initial understanding of the term "recycling". Several of the children, mostly from Queensland, had advanced understandings of recycling, garbage, and food cycles in nature with their threatening consequences for animals.

Most of the Norwegian, and nearly all of the Australian children were knowledgeable about the rubbish collection and sorting at their kindergarten, but only half of the children in both countries were aware of such practices at home. Nevertheless, the statement of Alma, who sorted rubbish "… when [she] had group time…", seem to confirm that children may see occasional collecting or sorting of rubbish as a kind of categorizing activity, while regular recycling activities would make them familiar with it (Kahriman-Öztürk et al., 2012).

Saving of water was familiar to the children in Australia, where drought can impact upon the communities where the children live. The Norwegian children seemed to be uncertain about problems related to water use, as fresh water is an abundant resource in Norway. They seemed to be more familiar with restrictions on availability of warm water. Several children of both countries had some understandings of a need to save electricity, for example in relation to warming up water, having light, using electronic equipment, and saving money.

The Australian children seem to be a little more familiar with saving paper, but none of the children in both countries commented on this issue. Kambouri (2016) underlines the demanding role of early childhood teachers to respond to the children's conceptions, to develop their scientific understanding, and to encourage the children to share their ideas and to construct and develop their learning together (Ahi, 2017; Kos et al., 2016; cf. Lave & Wenger, 1991).

Children's Understandings of Garden and Composting

Long periods during the year without gardening activities, may be one of the reasons why many of the Norwegian children seemed unsure whether their kindergarten had a garden or not. Some of the garden plants, mentioned by the Norwegian children – leaves, trees, grass - suggest a broad understanding of what was associated with a garden. Most of the Norwegian children liked to be in a garden: playing, watering, planting plants, and/or eating seeds. According to an earlier study (Sageidet, 2016), 60 % of the Norwegian kindergarten teachers had an interest for gardening, but they used it seldom in their kindergartens. Gardening in kindergartens is a rather slow upcoming trend in Norway (Sageidet et al., 2018), while it is common in Australia (Sageidet, 2014b). All the Australian children were sure about having a garden in their kindergarten, and nearly all liked to be there. Several children spoke about their involvement in garden work, or with their kindergarten's chicken coup. Fewer than half of the Australian children, but most of the Norwegian children, did not know what compost is, but some from both countries had a good understanding. More Australian than Norwegian children knew about separating food scraps at their kindergarten.

The children in this study do seem to seek meaningful relationships related to gardens (cf. Sageidet et al., 2018), and they make connections to their prior knowledge or – in the case of Lizzy and the growing "eggs" – they make connections to their own misconceptions (Henson, 2003; Kambouri, 2016; cf. Lave & Wenger, 1991). Gardens can provide play opportunities, skills and sensory perception that may lead to the permanent retention of knowledge, and may awaken and unfold the child's interests (Desmond, Grieshop, & Subramaniam, 2004). Garden use provides multiple possibilities for practicing and understanding of sustainability (Bergersen, 2016; Sageidet et al., 2018), and gardening in Australian kindergartens could inspire Norwegian kindergartens.

Children's Understandings of the Taking Care of Nature

Most of the Norwegian children had very limited understanding of the issues related to taking care of nature. They had a vague understanding of the term "nature" and alternative questions were necessary to get some responses. The researcher in Queensland used the term 'environment' instead of 'nature'. The term 'nature' occurs four times in the Australian curriculum (DEEWR, 2009), and 42 times in the Norwegian Framework Plan (Ministry of Education & Research, 2017). Several of the Norwegian children associated the question with the woods, from where they may have their own socio-cultural experiences as their reference frame (cf. Henson, 2003). The Australian children seem to have a broader understanding of taking care of nature, including taking care of other people and using social competences, actions and ways of thinking that identify the children as being responsible citizens (Bell, 2016; cf. Heggen et al., Accepted/2019).

Perhaps, this difference can be explained by the Norwegian kindergartens traditionally giving priority to the ecological dimension of sustainability (Fjørtoft, 2001), while the social dimension possibly has been less in focus. As a comparison, investigations in Swedish kindergartens revealed both a more or less missing of the social dimension of sustainability (Ärlemalm-Hagsér & Sundberg, 2016), and a fairly good recognition of this dimension (Borg, 2017).

Most of the Australian children and half of the Norwegian children thought that their parents do take care of nature, but they had a vague understanding how this might happen. We may imagine an untapped sustainability related home "curriculum" through the children's perceptions (cf. Borg, 2017; Sageidet et al., 2018). Some Australian children seem to associate their parents' care for nature with their daily work or care for other people. It is interesting that more than half of all children felt competent to take care of nature (cf. Johansson, 2011; Heggen et al., Accepted/2019).

Children's Understandings of Concepts and Interrelationships

Most of the children in both countries seem to have some basic understandings of terms like 'nature', 'environment', 'rubbish', 'compost' and even 'garden', but a starting understanding of the term 'recycling'. Even if the concept of electricity is challenging for 4-5-year-old children (Kos et al., 2016), kindergarten teachers

should provide opportunities for the children to develop their curiosity for initial explorations of phenomena like electricity (Ahi, 2017; Sageidet, 2012).

The restricted data of this study seem to give a slight impression that the Australian children may be somewhat more accustomed to adult guided conversations and activities, even if this issue would need further investigations. However, this study confirm a close relation between language skills and the children's ability to give an oral expression of their understandings (Bergersen, 2016; Sageidet, 2012; Vygotzky, 1986), and language stimulation and 'giving names' to things may sharpen the children's attention.

Social and exciting events such as drama plays, parties, and emergency training, or making volcanoes or soap bubbles, were obviously memorable for many children of this study. According to Robson (2012), social and exciting settings may support the children's remembering of the information (Ahi, 2017; Hromek & Roffey, 2009; cf. Lave & Wenger, 1991).

Once, the children involved in this study had understood an interrelationship, for example between turtles or other animal's life and disgarded plastic bags, they seemed to remember it well and they were eager to discuss their knowledge. Possibly the children recalled their mental models (Halford, 2014). The finding is similar to the results of Palmer and Suggate (1996, 2004) who found that factual knowledge seems to be more robust than misconceptions as children get older.

CONCLUDING IMPLICATIONS AND SUGGESTIONS

As expected, there were marked variations between individual children's experiences and understandings of sustainability-related topics and activities, and their ability to communicate them, regardless of whether they came from Norway or Australia. Most of the children of this study enjoyed being outside, preferably in social settings, while some children were not comfortable outside. The Norwegian children seemed to experience more frequent and diverse opportunities to explore and to get in touch with nature, while some Australian children had quite sophisticated ideas about sustainability-related relationships and interconnections. Several children from both countries showed fairly complex understandings of rubbish and recycling. Saving water and paper was somewhat more familiar to the Australian children, while children from both countries could relate some of their everyday experiences to saving electricity. The children's understandings of conserving seemed closely related to their everyday involvement with any kind of saving. Nearly all children liked to be in a garden, yet, there is an untapped potential to develop sustainability related garden activities with children.

Most of the Norwegian and Australian children thought that the adults in their kindergarten, as well as their parents, like to be outside. The Australian children seemed to have better expression about what the adults are doing outside, including some gendered associations (one's mother seemed to like hanging clothes in the garden, another's father liked to build things), while the Norwegian children seemed to have rather restricted understandings of their parent's sustainability related attitudes and behaviors. Adult guidance has a great potential for children's learning (Borg, 2017), however, the adults need to be aware of being role models (Lave & Wenger, 1991; Sageidet, 2012). Further research may investigate interrelations between parents' and other adult's actual sustainability related behaviors and attitudes and children's understandings, and how children's understanding may be developed by a closer collaboration between the kindergarten and the children's home.

The children's experiences and understandings and the way they were communicated in this study, may contribute to the further development of sustainability related programs in kindergartens. Kindergarten teachers should not hesitate to discuss the complex concepts and interrelationships associated with sustainability. Gardening, keeping chickens or other animals, food preparing, paper production, waste removal and water education, have great potential to provide young children with understandings of interrelationships and cycles in nature and culture (Kos et al., 2016; Miller et al., 2014, Sageidet, 2014b). Such activities may also develop practical sustainability-related competencies, like collaboration skills, social skills including the development of a sense of responsibility, and simple mathematical/economical skills, thus integrating the ecological, social and economic dimensions of sustainability in kindergartens (Ärlemalm-Hagsér & Sundberg, 2016; Davis & Elliott, 2014; Bell, 2016; UNESCO, 2012, 2014). These activities may also promote the children's feeling as members of the world's ecological and social community, and perhaps even their identification as ecological citizens (Bell, 2016; DEEWR, 2009; Heggen, et al., Accepted/2019; UNESCO, 2014).

Kindergartens of both countries may increase children's understandings of environmental and sustainability-related issues by further developing appropriate learning experiences which need to provide frequent and diverse, contextually appropriate and language stimulating opportunities for young children to be valued contributors in complex discussions and experiences exploring multifaceted sustainability interrelationships. Thus, this study may support and strengthen children as ecological citizens.

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Local Weather Events: Stories of Pedagogical Practice as Possible Cultures of Exploration

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Abstract

Purpose: This article aims to describe and discuss what local weather landscapes mean to children and how weather implies exploring bodily sensations and capabilities. It does so by following the work of a community artist, working as a kindergarten teacher, over 1 year.

Design/Approach/Methods: Through a narrative inquiry approach, which also includes studies of archival data and field notes, we analyze how local and personally experienced weather events imply what we call "cultures of exploration" in institutional practices. The epistemologies cross the specter of cultural–historical, pragmatic, and deep ecological philosophy.

Findings: Through this study, we exemplify how experiencing weather is intertwined into pedagogical practices like habituating the body to cope with cold and wet weather, learning about danger in a wild natural landscape, and valuing species as a powerful practice. The descriptions exemplify "cultures of exploration" as a pedagogical approach.

Originality/Value: In this time of an increasing climate crisis on our planet, the value of our findings is to foreground new insights, awareness, and knowledge relevant to children; to early-

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childhood education; and to life and societies at large. We can thus develop methods to better care for, protect, and educate children. This article has the potential to show how weather events are intertwined with everyday institutional practices—as well as how children, through exploration, learn to cope with seasonal weather landscapes and local cultural adaptations.

Keywords

Cultures of exploration, narrative inquiry, pedagogical practice, weather events, weather landscapes

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Introduction and motivation

The aim of this inquiry is to point to possible new understandings and knowledge—relevant to children, to early-childhood education, and to life and societies at large—so that we can better care for, protect, and educate children in these times of increasing climate crisis. It is vital, in education, that we pay attention to the relationship between children and weather landscapes and increase our knowledge thereof. This will aid us to further plan for a sustainable future and to develop pedagogical approaches that aim toward cultures of sustainability (Siraj-Blatchford et al., 2016; Zhou et al., 2016).

Through a narrative inquiry approach, we will bring attention to practices in which we can identify habits, experiences, and practices of what we will call "cultures of exploration." The accounts and stories we share will show how weather events and weather landscapes can be experienced, and we will investigate what these accounts and stories imply about exploration within the context of children's early years.

It is not a new theme, in early education, to experience and explore weather and seasons. Yet educators today must renew their attention to the meaning of weather events, in the context of sustainable futures. This study is essential for two reasons: (a) it is of general interest, in early-childhood education, to study how local weather landscapes affect children's lives and how children make meaning of and cope with weather landscapes; and (b) more extreme weather is expected in the future due to global warming. Children, the elderly, and people with impairments are the most vulnerable to extreme weather. Gaining an understanding of the relationship between weather and children in educational settings may contribute to new awareness and knowledge, which can then be utilized within educational practices. This has also been pointed out by Stibbe (2017). Such knowledge is also relevant to policymakers who aim to create policies focusing on sustainable futures.

Children born today are beginning their lives in the Anthropocene age (Steffen et al., 2011). Natural forces and human forces are now widely seen as intertwined and interdependent. The

Anthropocene age was proposed in 2000, as a new phase in the history of humankind and of the earth. Academics (Capra, 1982; Kagan, 2011) and the Intergovernmental Panel on Climate Change (Lee, 2018) agree that the world is close to a tipping point and that humans have had a damaging impact on planetary processes. On the west coast of Norway, where this narrative inquiry was carried out—as elsewhere on earth—we are already experiencing warmer, wetter, and wilder weather due to global warming and increasing climate changes. This impacts children's future lives; thus, new conceptualizations and narratives that help us understand how cultures and practices relate to weather are clearly essential to early childhood education and care (ECEC).

A line can be drawn between the motivation for this study and global concerns with risk reduction. The United Nations declared the first International Decade for Natural Disaster Reduction back in the 1990s (Siraj-Blatchford et al., 2016, p. 203). Although the global and national discourse today, in the field of education, is often aimed toward education for sustainability—and though sustainability as a concept has gained in strength and popularity since the 1980s—*un*sustainability has deep cultural roots (Kagan, 2011, p. 23). A cultural–pedagogical perspective represents the search for insights and knowledge that can point to ways to escape this unsustainability. While we connect this theme to children and teachers in the context of early childhood education, our agenda is *not* to teach children about global warming, changes in climate, or crises. Instead, it is to raise awareness—in the context of ECEC—to children's rights, including both their right to protection from danger and their right to be recognized and encouraged as explorative and creative agents in their own "weather worlds." As such, we aim to give examples of longstanding historical practices of introducing children to local weather landscapes and of how children—through exploration, adaptation, and cultural formation—can form part of local practices.

This article is comprised of four parts: First, we will outline the concept of "weather event" by introducing the Norwegian and local context as well as the epistemological underpinnings for highlighting weather in an ECEC context. As narrative inquirers, we will include personal stories and memories. By walking alongside André for a year while he worked with kindergarten children and staff at the intersection of arts and education for sustainability, this narrative inquiry brings knowledge and insights into how local weather events create conditions for children's cultural formation. It does so by eliciting stories, by listening to memories, and by discussing the challenges faced within this ECEC setting. The study includes Andrès' notebook for the year as well as archival data of the 4-year-old kindergarteners' own documentation and reports.

The personal is also cultural, according to Clandinin (2013), Ingold (2011), and Mollenhauer (1983). We introduce a pedagogical thinking tool of "cultures of exploration," grounded in cultural–historical and nonhuman awareness epistemology, to develop relevant knowledge within a frame of sustainable futures.

Conceptual underpinnings and arguments for establishing "cultures of exploration" through a study of experiencing weather events

Cultures of exploration, in early childhood education, introduce the promise of a pedagogy where the teacher cocreates kindergarten content when operating in practice; in planning and meeting children and families in their local community; and in considering activities, relations, place, and space (Ødegaard, in press). Cultures of exploration, in research, need to consider *time*, *relation*, and *place*; these aspects are also crucial to narrative inquiry (Clandinin, 2013). Time is both the "here and now" and the future (i.e., being and becoming). It is, at the same time, connected to the social (relation) and physical (nonhuman) worlds as weather landscapes and weather worlds. Time as "becoming" indicates "changing to," "moving toward," and "formative development" and actualizes personal stories. Dialogical engagement is seen as the most crucial moment in pedagogical practice, which can open the space for "cultures of exploration." Here, we draw on concepts like heteroglossia, speech genres, and Mikhail Bakhtin's (1981, 1986) loophole, among others. The conceptual underpinnings cross the epistemological perspectives of cultural–historical ("cultures of exploration," as grounded in, e.g., Hedegaard and Ødegaard, in press), pragmatics (as grounded in narrative inquiry by Clandinin, 2013), and an anthropological approach, giving attention to humans' relationships with the nonhuman, and to geographical weather landscapes (grounded in Ingold, 2011).

We use the central concept of "local weather events" to underpin the inquiry. Such events refer to experiences where the weather is the driving force in an analytic narrative description of what takes place within excursions. We anticipate that weather events condition children's meaning-making. This is shown, for example, in how the children and staff in the study work collaboratively to build a new habitat in the woods or in how they express themselves through drawing and storytelling. Weather events also condition children's cultural formation—for example, how institutional practices discipline children to live, explore, and cope in their weather worlds. As Ingold (2001, 2018, pp. 20–31) has pointed out, education is fundamentally a matter of attention, not transmission. While transmission shuts out life, paying attention (Latin *adtendere*, meaning to stretch) includes listening to meaning, being present, and getting along with others by caring for people, things, and nonhuman conditions alike (Rytzler, 2017).

Weather, especially extreme weather, creates important sensory experiences in children's lives and has crucial impacts on their living and survival conditions. While this sensory condition is crucial to the Nordic way of life, the condition is often overlooked, as shown by the cultural saying "It's not a matter of bad weather but of bad clothing" when referring to outdoor living in the cold and wet North. Norwegians with a local family history, like the research team behind this article, have traditionally taken for granted that experiencing nature—going outside, taking walks in

nature landscapes, and getting fresh air—is important for a healthy life. This cultural belief is also evident in the national curriculum and is regulated by Norwegian law. The first sentence under the headline "Sustainable Development" states: *The children shall learn to look after themselves, each other and nature* (Ministry of Education and Research [MER], 2017, p. 10). Since sleeping outdoors in strollers, or in shelters equipped for outdoor sleeping, is a common practice for toddlers aged 1–3, low-temperature guidelines are provided to the owners of these items. For example, children should not be outdoors when effective temperatures are below −10°C. Various nongovernmental organisations and the health directorate have pointed out the danger of getting too much sun and have provided advice on how to protect children from sunburn. With new weather landscape of more extreme weather, protection guidelines will be important.

Because we already live in a weather world, climate change is a reality, and adult societies have the responsibility to reflect on—and act upon—this reality as it affects our children's development and well-being. We thus need to create new pedagogical knowledge that will study nature–culture binaries in the context of education (Wells & Lekies, 2006). When children make sense of the weather, we consider this sense-making to be both a habitual and an explorative practice as well as a situated local landscape practice. When these practices take place within an institutional setting such as a kindergarten, we consider these practices to be formative: Children will experience more than just the sensation of wind, cold, water, and snow. Their teachers will introduce them to educational practices based on local landscapes and cultural habits, which will provide more or less reflective awareness.

While today the general population has a higher general awareness of climate, the use of weather conditions in educational settings is not a new theme. Historical–philosophical writings on children's lives, such as those of Comenius (1887/2012) and Fröbel (1885), highlight the cyclic nature of living on earth. Comenius presented the holistic weather world, which included landscapes for children, in his *Orbis Sensualium Pictus* (Comenius, 1887/2012; Ødegaard, 2018). Fröbel (1885) highlighted how humans are part of nature's whole life cycle, with seasons for gardening and changes in nature (Eikset & Ødegaard, in press). These historical–philosophical roots of early childhood education can also be seen today through traditional kindergarten curricula, such as learning about the seasons and the experience of planting seeds, both of which imply learning about nature's cycles and the conditions necessary for growth.

We agree with Elliot's (2016) argument in a recent editorial note: Children's rights should include active/agentic rights, collective rights, intergenerational rights, and eco/biocentric rights. We also agree with recent post-human and nomad thoughts that highlight awareness of how "more-than-human" ways of knowing, being, and acting are worth taking up (Bignall & Rigney, 2019; Ingold, 2010). These thoughts align living with a holistic ecological understanding—as can be identified in early human history, indigenous nomad traditions, and the philosophy of deep

ecology. Arne Næss—the Norwegian philosopher of deep ecology who was inspired by eastern philosophy and was an important agent of ecological thinking in Norwegian society—urged us to think holistically and in a future-oriented way. He stated that one of the characteristics of a human being is the ability to imagine and create alternative solutions and that these human characteristics give us a greater responsibility than any other living organism (Næss & Mejlender, 2007). Following on this statement, we further argue that the romanticized image of the child in nature, long-held in early-childhood education, should be both challenged and expanded by current studies. Nature is both rewarding and harsh; as such, its role in children's lives is paradoxical.

While most children in Norway live regulated and habitual lives within families and early-year institutions, they also live in unpredictable weather worlds. Until the unusually warm summer of 2018, growing up on the western coast of Norway meant living in a weather world where most days were cold, wet, and windy. Landscapes here can be rough, with rocky mountains and uncultivated woods and a coastline marked by fjords and openings to the North Sea. Childhood experiences, memories, and habits are created as part of a child's formative development. During a 1-year kindergarten cycle, where the culture prioritizes outdoor living for many hours each day, children will experience a variety of weather events. Some of these are pleasant and temperate. Others are extremely cold or hot and potentially dangerous—with strong winds, icy external landscapes, or a burning sun. Weather forms part of the local landscapes of kindergartens in ways that connect to ECEC policies, curriculum and design, and regulations for outdoor activities.

Ingold has clarified how air and weather are part of human lives. Ingold (2010) concludes, in *footprints through the weather-world: Walking, breathing, knowing*, that weather is a critical factor for the relationship between bodily movement and the knowledge that develops from that movement. Myrstad and Sverdrup (2018) reference Ingold by stating that—although weather conditions, landscapes, and seasons are guiding elements for kindergarten activities and although we recognize that weather conditions play an active role in learning processes—these themes are mostly ignored, both in early-childhood research and in practice. The authors provide detailed insights in their up-to-date descriptive research into how temperatures and the snowy outdoor landscape are interrelated and how changing temperatures and snow qualities condition young children's movements in outdoor activities in the northern parts of Norway.

In this frame of understanding, which explores how formative practices take place in an institutional setting located in a specific place, weather events are one aspect of the cultures in which children live, adjust, and protest. In this study, "place" is considered dynamic (Massey, 1991, 2003) and "formative practices" are understood to be cultural and habitual experiences. We follow Mollenhauer's critical thinking, in this context, which views education as *Bildung* (Cultural formation/Becoming; Mollenhauer, 1983). In line with Ingold (2018), mentioned earlier, Mollenhauer also emphasizes the value of "attention" in education. Mollenhauer (1983), more explicitly

than Ingold, has developed an educational language and arguments for cultural awareness around how we present and represent culture to children by living with them.

"Culture" in this context means art, habits, values, and human relations. Mollenhauer suggests that "pointing out" is a fundamental educational act through which children's attention is both directed and formed. In everyday practice, children—along with staff who, in different ways, point out and embody different ways of living—will acknowledge the existence of and the uniqueness of these, in interpersonal and intergenerational relations. Ingold (2001, 2011, 2018) agrees with Mollenhauer regarding habits and the generational perspective of human culture. Yet, he goes beyond the view of culture as human-centered by paying attention to more-than-human worlds such as landscape, weather, and biological human heritage. These philosophical inspirations help us to understand practices as formative, habituated, explored, and experienced. As Mollenhauer (1983) has pointed out, some of these values and ways of behaving are articulated and carefully planned for. Meanwhile, others, which may be more embodied, habituated, and subtle, are rarely articulated or analyzed systematically. Educational institutions—following national and international frameworks and laws—discipline children in ways that are anchored within a broad common agreement about the values and rules of what we consider children's best interests, in the cultural context in which they live. But everyday habitual practices also follow hidden and often forgotten or ignored practices.

It may seem obvious, but weather conditions may affect what is possible for children to do; previous researchers (e.g., Chan & Ryan, 2009; Myrstad & Sverdrup, 2018; Somerville, 2013, 2015; Somerville et al., 2011) have also documented this notion. High or low temperatures, heavy rain, heavy snow, or strong wind may allow for short explorative events and may be fascinating from a distance. But being in extreme weather for an extended period of time can serve to decrease one's pleasure and can be unsafe, especially for children. On the other hand, participation in some activities—such as sledding, skiing, skating, or swimming in natural outdoor environments—is only made possible by specific weather conditions.

Elin Meeting André in dialogues of exploring landscapes, children's arts, and sustainability

In the initial phase, I[1] searched for possible articulations of sustainability and weather events in public online reports and in annual documents for the year 2017, provided by 242 kindergartens in Bergen, the second-largest city in Norway. By word-search in these documents, we found a small sample of projects and themes that were framed and articulated as "sustainability" projects, but none were also articulated as relating to "weather" or "climate." The most common keywords we found connected to outdoor activities were physical activities, nature, explore, outdoor play, meals,

and activities. Nevertheless, I found examples of themes reported indirectly, with weather-related words like "water" and many photos portraying outdoor activities.[2]

At the same time, André, a community artist, was seeking collaborating partners for a research project. He found me and asked that we look for opportunities to partner in common areas, for future research. André had years of experience working with municipality kindergartens in the city of Bergen to strengthen the quality, especially in the intersecting areas of arts and sustainability. To develop new research projects, we agreed to carry out a pilot study through dialogues and shared inquiries.

When I first met André, I was studying the concept of exploration and searching for literature. It struck me at once that he was an explorative practitioner, highly engaged in understanding and supporting children's meaning-making and exploration—their living in the world—especially in the weather landscape world (Hedegaard & Ødegaard, in press). André's portfolio included many community arts projects, financed by the Norwegian Ministry of Arts and Culture and the municipality of Bergen. He was also attractive to local kindergartens because his support and collaborative pedagogical work with children and staff had been experienced as productive, in processes to enhance the qualities of kindergartens. His expertise had earned national awards for kindergartens documenting arts projects.

We agreed to explore his experience and engagement in greater depth, through a year of work in one kindergarten. We began by selecting his report from 2017, conducted in and with a local kindergarten. We met 14 times over the year for dialogues and inquiries, to understand more about the impact of weather landscapes and early years' institutions. We started out with stimulated recall (Dempsey, 2010) of stories about weather events. André's ideas were inspired by a Norwegian novelist, Knut Hamsun,[3] and his book *Growth of the Soil* [*Markens grøde*]—a novel about how man habituates to the landscape, about how the landscape creates certain harsh conditions, and about how life itself is complicated. The framing was an arts and nature project exploring "habituation." In it, we observed how two kindergarten groups experienced new landscapes and how they explored the habituation of a place in a neighboring nature landscape that was considered "wild." This report was rich, illustrated by photos and children's drawings to document and describe a series of projects aiming to elicit and encourage children's meaning-making, exploration, and creativity in diverse artistic expressions—both while habituating the place and afterwards in storytelling and drawing sessions. The parents and staff had given their consent to the arts project, including the documentation thereof. Photos of landscapes and of children's activities[4] when working with the process of habituation, along with the children's drawings in the report, provided a source for the stimulated recall and, later, for the analysis of André's stories.

We decided to expand the data sources by adding André's notebook to our analysis.[5] The notebook consisted of a detailed account for each day of the project. This account gave descriptions

of the landscape the groups approached and the process of settling in and habituating the place. The report triggered memories and stories about weather events in much greater detail than as stated in the report.

The background for the notebook was André's work to supplement the kindergarten curriculum. The documentation was produced in a series of 16 excursions, with 60 written pages altogether. The notebook consisted of stories about André's dialogues, observations, and reflections. For the project work in the kindergarten, photos and children's drawings were included. For research purposes, only the already public photos and drawings were included. André's personal notebook was also used to stimulate remembrance (Dempsay, 2010) and elicit elaborate narratives about weather events. To help trigger memory, the YR[6] application was helpful for establishing the exact local weather at the time (as also seen in Myrstad's and Sverdrup's, 2018, methodological approach to studying the impact of weather for kindergarten practices).

Stimulated narrative recall helped André to describe, in richer detail, his remembrance of his experience with the weather landscapes and how this created conditions for children's movements and their experience with excursions. Telling stories based on memories is a means by which human beings represent and restructure the world. Stories reveal a specific cultural system, the "organizing principle" by which "people organize their experience in, knowledge about, and transactions with the social world." (Bruner, 1990, p. 35) By studying written and oral accounts of personal experience, we can examine the tellers' ways of representing and articulating practices concerning weather events.

Several items were identified as stepping-stones for the narrative recall. We worked on narrowing down a broad field of possible angles, into our common interest: How weather as a natural condition intersects with everyday institutional practice. We looked into connections between the children's meaning-making and agency in finding a place and building a shelter with the material they found in place as well as other material conditions such as landscape and weather. André emphasized his pedagogical approach when doing excursions with children. He describes his own ambitions and the frame for the pedagogical explorative approach with the children, as follows:

> I wanted the project to develop as organically as possible, so I tried to be open both within the project and in the process we used. We did use a structure, however: we wished to explore a place located on the outskirts of the kindergarten, and we wished to work together on a process of building, using natural materials. The children, staff, and researcher experienced the chosen place as "wilderness:" it had no previous paths or other obvious signs of human interference. Instead, it was an uncultivated rocky area with trees, bushes, a stream, and some steep hills—a typical area in Norway's west coast. (Edited excerpt from André's field notes.)

As the second author, the leader of the kindergarten arts project, and the creator of the field notes and stories, André was highly aware—as he expresses in this excerpt and repeats many times during our dialogues—of how the children explored and experienced the landscape. He took the project step by step, as he wanted the project to develop as "organically as possible." Still, he had a plan and a structure in place, in an effort to grasp the children's meaning-making. He did this by walking alongside the children when they went into the wilderness and built a shelter, and while sitting on the floor beside the children while they drew after each excursion. André established a long-term relationship with both staff and children as he walked alongside them at excursions and worked with them during the arts project—both when habituating a place in the wilderness and when drawing and recounting their experiences after the excursions.

These excursions took place once a week for 9 weeks. The children involved were all 4 years old and were divided into two groups. The first group had 10 children, 1 teacher, and André. The second group had eight children, one teacher, and André. The structure of the working process was as follows:

1. In the woods: 09:45–11:45
2. Outdoor meal: 12:30–13:00
3. Artist workshop: 13:00–13:45
4. Adult meeting: 14:00–15:00

The steps in the collaborative process (children, teachers, and André) were:

1. finding the place, studying a map of the area to find a place to explore, searching along the stream/river to find a place to build a shelter, experiencing cold and wet weather for several hours, marking the place, establishing a drawing book, and establishing a place for the documenting camera;
2. exploring the place, finding samples from the land (stone, grass, etc.), walking across the land, fishing in the stream, and drawing the place;
3. establishing functions, building a shelter, bending large branches and stripping and marking them with rope and thread, and braiding the branches for walls;
4. continuing with the building;
5. living and being; exploring how to stay protected and to live in cold, wet weather; and finding materials from the juniper trees, to sit and rest on;
6. establishing more functions: a fireplace, reconstructing a place by the river for better access to the river and digging for a place to grow potatoes; and
7. living and preparing for a more comfortable life by further building and making improvements, both within and outside the shelter.

Narrative inquiry and the analytic commonplace of time, relation, and place

According to Clandinin, we all live in personal stories—stories that are planted in us in our early years or along the way—and we also live by the stories we have planted in ourselves (Clandinin, 2013, p. 22). Narrative inquiry is a relational inquiry. This means, for me, that the study was a collaborative inquiry into the research puzzle[7] to explore the impact of weather events, which could be unpacked when entering dialogues. My role was to coexplore whether the analysis of weather events could be a fruitful way to acquire new and relevant knowledge in the context of future sustainability research. I later organized, for our dialogues, a series of stimulated recall sessions for remembering and developing understandings. Over the course of the year, in 14 meetings, we developed a collaborative partnership and shaped a joint understanding. I wrote up new narratives and presented drafts of the analysis for further discussions and changes with André.

The data analysis consisted of three levels of analysis. First, the two authors collaborated on a common-sense analysis based on the second author's (André's) own field notes from the kindergarten project. We saw that weather events and the weather world itself were scarcely mentioned, explicitly, in the field notes. Yet we discovered that if we isolated the narrative descriptions of how weather events conditioned the children's actions, explorations, and expressions, then weather events could be read between the lines. Most of all, the field notes provided descriptions where the children took the weather world for granted. For example, when the weather was notably cold, snowy, icy, and wet, the notes informed us of these conditions indirectly. André could vividly remember more details when going through the field notes. He told stories of children while they were moving, playing, and building in the snowy, icy, and wet landscape. We, therefore, could build a next level of narrative analysis including a new set of more focused notes, creating new narratives based on stimulated recall.

The second level of analysis was inspired by the perspective of narrative inquiry (Clandinin, 2013), where time, place, main characters, and problems are interconnected. This coexploration continued along a narrative view of weather relations. Narrative inquiry uses temporal order to organize information about events; in this way, a weather event is a "moment" when the weather is taking place. We call this the *temporality commonplace* (Clandinin, 2013, p. 39). In our context, this notion of moments supported our analysis. The narrative analysis, in short, was a reconstruction of events based on field notes, the public report that included photos and children's drawings. By identifying the small narratives that contained articulated or indirect relationships between weather worlds, the landscape, and the children's activities, we were able to gain richer material. At the same time, the material was more focused—as a process of experience, moment by moment.

Such a procedure will not present experience as it was. Rather, it shows an experience as André remembers it, on the basis of his own field notes and visual material. Narrative inquiry attends also to the personal dimensions of stories. We call this level of analysis the *sociality commonplace* (Clandinin, 2013, p. 40). By recalling events, we explored how André remembered them—both going inwards to his motives and value positions and going outward to unfold the particular events. The specific physical place was of special interest here. Therefore, we also included a narrative recall that we call *place commonplace* (Clandinin, 2013, p. 41). The experience of place, in this project, meant the experience of nature, landscape, and weather sensations. By exploring place, we were able to access more detailed memories of the temperature, rocks, water, plants, and surfaces André had experienced. This procedure of memory and reconstruction allowed us to move to the third analytic step: A construct of analysis, inspired by Ødegaard's conception of how "cultures of exploration" (Ødegaard, in press) can be constituted and further conceptualized, by systematically analyzing and describing dialogical engagement, here found in the teacher's practices. This inquiry gave rich examples of how a teacher engaged in children's experiences via a dialogical pedagogical approach, as seen below.

Finding cultural practices constituting "cultures of exploration" in excursion

Upon reviewing the collection of material created throughout the year of 2018, I found several core descriptions in André's oral recall stories, his notebook, and his reports (archival data), which also included photo documentation.

1. Habituating the body—to cope with, adapt to, and manage weather sensations.
2. Encouraging agency and imaginative expressions.
3. Valuing local weather landscapes and species.

Habituating the body to weather sensations

Reading André's notebook, I could see how the cold and icy weather dominated several excursions and how the roots, grass, and rocks on the wild terrain made it slippery and difficult for the children to walk without falling. André encouraged the children to take small steps and to concentrate, so they would not fall on the slippery stones and roots. He also wrote about incidents where children cried; they were wet, cold, and tired. When expanding the experience of the event, André recalls:

> One of the low-voiced children told me that the rocks were too icy to stand on. At the same time, I saw another child with tears in his eyes. I then encouraged him—"You might want to try smaller steps"—and I suggested: "Watch out for branches, you can stick to them." It was not easy for them, so I went to a child who lay on the ground—he had fallen over—and I helped him on his feet again. I noticed that he was

unfamiliar with such terrain. I showed him how he could bend his knees a little more in order to keep his balance. I held his hand the first steps and then I said encouragingly, "Now you do it."

He continues:

We are far into the forest and the children are tired. "Shall we not eat?" One says. "We need a place to eat," says another and they begin to look around. Encouraged by finding a place to eat, they are spreading a bit in the terrain and soon fervent exclamations about nice places are coming. "Here is a very nice view," says two who have found a small mountain shelf. I come up to them and we sit. "Is there room for everyone here?" I ask. They look at each other and shake their heads. "But it's a nice place; from here we can see all the others," I say encouragingly. Two larger groups stand out on the plains and I see them discussing between themselves. I go down to look at each of the places. They fit both well and I call everyone together so we can take a vote. The eager debater for her place loses her case and becomes very frustrated. "I'm sitting here anyway," she says stubbornly with her face turned away. I sit down with her a bit to show solidarity. I see that it is a huge loss of prestige for her, and after all she has added that she does not intend to give up on this. "Shall we go away together?" I suggest. She shakes her head in despair. "What if I carry you away?" I suggest. She doesn't say anything, but I see that this could be the way out of the trap. I lift her gently and carry her away to the others. It seems that several in the group recognize themselves in this, and there are no comments on the appearance.

Encouraging children's agency and imaginative expressions

André expressed—in the reports, in the field notes, and in his recalled stories of events—a deep respect for children's initiatives, their intuitive expressions, their play imaginations, and their understandings of the world around them. He also showed a deep interest in their artistic expression through the way they built with natural materials found in the woods as well as in their photos and drawings. He vividly recalled dialogues he had engaged in with the children, stimulated by his field notes and reports, which also included photos and children's drawings. André's personal engagement in the pedagogical practice was evident in the way he went and sat alongside children or walked beside them, as well as later, in the drawing activity sessions. He would sometimes point to the level of engagement of the staff (here referred to as adults) he worked with. Here, we will present a stimulated recall story where André enhances children's initiatives; we can then study how he follows up in dialogical practices. This next narrative unfolds around the stimulated recall of a drawing from the archival data (a report). André explains how, after each excursion, the children work with their individual "Forest-green-book"—a book where they express themselves through art, often in drawings. These art-making events are arranged in a room in the kindergarten, where the children work on a floor that is decorated as a natural wild environment. In this narrative, André, the group of children, and an additional adult are working with the children's Forest green books.

"See that odd hole?" The child said and pointed to a spot on her drawing. "Does anyone live there?" One of the adults asks. The adult places his hand towards the opening of the hole in the drawing. "Don't do that," says the child. "Maybe you will disturb, I might rather take a picture," the child says. The child who discovered the hole in her drawing explains more. "It's dark in the middle—completely dark," she says, and the pencil runs quickly in circular motions of deep purple colour. "It looks so dark that you can't see what's there," I suggest. "The edge is brighter," the child took an orange pencil and drew a gentle circle around the deep purple hole. "It's almost like a light," I say, remembering how the sunlight had made an optical narrow ray, like a luminous ring under the leaves of the tree. The sun was low this day, due to the autumn season. I imagined the child explored how to express that in her drawing.

I recall how this child, earlier this day, came up with a suggestion that inspired me. I recall this day, in particular. The weather was unusually warm for the season here, it was late autumn. It had been a nice day for building shelters in the woods and we had been talking about what man needs for survival and one of the things we agreed upon was the need of a shelter. We had made a shelter by bending the tops of the small trees together into a kind of hut, using a thin rope for the purpose of collecting the branches so they would stick together. We sat down admiring our construction. Then one of the adults asked, "What do we need for the cabin?" "I don't know," one of the children replied. Then another child suggested: "Close your eyes." I could see that everyone closed their eyes, so I followed up of course. Then eventually suggestions for a bed and a kitchen came up. "What else do you see?" I asked. Then one of the children sincerely said: "I don't see anything when I have my eyes closed—it's completely dark." Others followed up with more suggestions about what they could imagine. I found this event so inspiring, and since this day this idea of closing our eyes to think better became a common way when we talked about how we could arrange shelters, survive, and live in the forest.

The narrative describes how André notices children's suggestions and follows up on them, both "there and then" and later on, as new practices. André had more narratives about how children came up with suggestions and how he, and the other children and adults, followed up. He continues:

We were way past the children's usual mealtime and several children suggested settling down to eat. Other children would like to go further in order to find a better place for sitting down. When some of the children just sat down, the adult addressed the whole group: "Those who want to sit here, please raise your hands now," and, a moment later: "Those in favour of moving on, raise your hands." The adult counted the votes and the majority wanted to sit down and eat. In spite of the adult's conclusion, one of the children went ahead and soon after his friend went along with him, some more meters up a steep stony hill. Soon the two shouted out: "Up here is very nice." I walked up to the two out-breakers. "Those with the food are down there," I said, pointing. "But here it is much better," one of them argued. "It's really nice here," I confirmed, and I sat down with them for a while. "But what about the food?" I asked. I suggested that we could decide this spot as an extra place for us, a viewpoint. Then one child suggested that down there could be the place for meals, so the three of us headed down to the main group, so the whole group could eat together.

In this narrative, we can see André explaining his way of negating places to sit. When some children break the decision made by the adult after the first round of negotiation and voting, he walks along with them, recognizing their choice of place. This recognition seems to ease the process of reaching his pedagogical aim of bringing the group together at the same place, creating togetherness for the mealtime.

Valuing local weather landscapes and species

The main pedagogical ideas of this arts project were to connect arts to the creativity that can emerge when exploring and to have new experiences, including those that offer challenges and conflicts. These ideas were investigated by walking in the forest landscape, finding places to inhabit and explore as a group, and getting inspired while experiencing a challenging landscape and exploring the places where the group decided to settle down for day and for the season. Both children and staff would engage in dialogues while walking as well as when settling down to rest. André explains, through the following narrative, how these activities could bring up dilemmas, conflicts, and negotiations between the human habitation of the natural landscape and the living natural landscape itself.

> When the group camped, everyone searched for the best place available to sit. In rainy, wet, and cold weather this was demanding, and it could take time before everyone was settled in a comfortable position. Even if the clothing generally was very good and the staff had brought insulating items to sit on, the ground could still be too wet, slippery, or soaked, so we often searched for particular moss or flat stones in order to sit comfortably. At the beginning of the year I experience(d) bad weather such as strong winds, as well as heavy rain, hail, and snow, (which) were demanding. I felt challenged and I experienced that some of the children would hesitate. I eventually found it interesting to see how we coped with all this bad weather. We had nice weather days too, but I soon started to like us being challenged by notable weather conditions.
>
> I remember one time one child found a good place and was about to sit down when the child discovered a small beetle that (was) slowly crawling over the selected small spot. The child stood half turned, in a kind of stiffened position between sitting and standing, while waiting for the beetle to cross the spot. It took a while and the child beside her followed the event with a startling facial expression. The child, in a stiffed motion to sit, waited patiently in a very uncomfortable position until the beetle has passed before finally sitting down. The child beside took a relieved sigh.

The narratives above exemplify how André himself and the children adapted to the local weather landscapes and the ways in which valuing the species living there became integrated into everyday practices. Finding good places to sit—what we could call inhabiting the landscape—could take time, due to negotiations and adaptations. At other times, André would challenge children's beliefs about animals. In his field notes, we found the following dialogue:

> GIRL: Wolves are cruel. ME: They're not cruel to other wolves. They can be dangerous to humans. We as humans are dangerous for many animals. GIRL: Not for horses. ME: Well, sometimes humans eat horses, and that makes us dangerous for them, and we're also dangerous for sheep and cows.

Recalling the dialogue, André comments:

> Occasionally the topic (would arise) of what kind of animal we could expect to meet in the woods, and we met a lot of living (species) during the spring, summer, and autumn season, mostly insects and birds. I believe it is important to teach children respect for living species. For example, I would encourage the group to understand that we shared the woods with the other living species. I could say: "Watch, there's a duck family. Let's be quiet and watch them," and I could say, "If there was a snail there, let us remove it gently."

This value of respect for other species was evident through many of the events described in the field notes, as presented above. It also came back in our summing-up dialogue. In response to my provocative question—"Is moving a snail really an act of valuing other species, or is it just an act of human centrism?"—Andrés answered:

> Well, the most common act of a human being—if a snail would be situated where he should sit—I reckon (would be) to kill it. In the kindergarten, we made a point of gently moving it. I guess we could have moved the whole group, but there would be species all over the ground. As humans, we had already entered the place where species live. We should rather learn to live together.

The narratives above reveal how weather events became inscribed in the everyday cultural practice of the kindergarten. Weather landscapes—such as moss soaked by heavy rains, cold temperatures, sun, and strong winds, as well as hail and snow—had an impact on the cultural practice.

Concluding discussion: Experiencing weather events in cultures of exploration

The aim of this study was to take the first explorative step into understanding more about how weather landscapes affect children's lives and about how children live in the weather-world of a specific local place—in this case, the western coast of Norway—in an educational context. In this study, weather served as a material condition that was integrated with everyday practices in an educational institution (in this case a kindergarten) and presented as a culturally formative practice.

The study's narrative inquiry design enabled us to bring to the forefront of attention how weather—a material condition for sustainability, as well as a personal and cultural one—can be integrated with everyday practices in an ECEC institution. The narrative descriptions show how weather, although primarily mentioned only implicitly in the field notes, became more explicit in recalling the events as personal narratives as well as in analyzing archival photos and drawings.

Habituating the body to live and cope in local weather landscapes, often meaning wet and cold weather, was the main narrative told. Other narratives observed children's relations to species, to exploration, and to participation. This study contributes to a greater understanding of how institutional practice is also a culturally formative practice, related to traditions and values established in culture and revealed in personal and local practices. The inquiry exemplifies how a dialogically engaged teacher can help expand children's experiences and how children can learn to value nature, in many varieties and forms, through a series of excursions and follow-up arts sessions.

Clandinin (2013) characterizes narrative inquiry as a slow research methodology, in which a study's authors attend closely to research participants, going along with them as stories unfold over time. I went alongside André, as he went alongside children and staff, over a year. No participant walks away from a narrative inquiry without being changed. André had experienced being provoked by the staff, regarding his intense collaboration and engagement with the children. He intervened in a culture where he extended the cultures of exploration. Our research puzzle of searching for a deeper understanding of how weather events impact pedagogical practices and cultures of exploration resulted, too, in a more profound understanding of how weather landscapes impact humans' habituation to cope with weather and local wild landscapes. The landscape—the "wilderness" explored by the groups—was not simply a romantic harmonic landscape, and the habits of being out in the cold and wet weather did not lead only to harmonic togetherness. These descriptions can challenge what Elliot (2016) describes as the long-held romanticized images of "the child in nature" that are dominant in early-childhood education discourse.

The inquiry revealed that—parallel to this romanticized image—was another cultural practice where children negotiated, protested, and adapted to the landscape and the weather. Equally important to this study is its exemplification, through inquiry, of how dialogical engagement can create group togetherness and learning values. Through André's field notes, archival data, and personal narratives, we were able to give rich descriptions of "cultures of exploration." When André challenges the children's emotions and senses, when he supports them even as they enter into dialogue and negotiations, children are encouraged and supported; they overcome tough situations. Such practices reveal habits, as well as local values and norms, for how to live with local weather conditions.

Overall, our study provides insights into how cultural values are embedded in everyday practice, via a project of exploring the wilderness and finding a place to build a shelter. The children's activities were conditioned by weather worlds, the landscape, and educational culture and habits. The inquiry showed how André and the children dealt with aspects of the cultural dimension of exploration and how institutionally based lives create cultures that can potentially be, or already are, cultures of exploration. Through the coexplorative narrative inquiry, we found experiences and patterns of how weather events create conditions for the kinds of sensory, bodily, and intellectual

knowledge that children can develop—and that will affect children's lives in ways that we are only just beginning to understand and foresee in education.

For further studies, we aim to learn more about how kindergartens build "cultures of exploration" to find a way out of unsustainability. The cultural and creative dimensions of sustainability need to be given more attention, although the past decade has seen growing interest in the topic, especially in the arts (Kagan, 2011). United Nations Educational, Scientific and Cultural Organization (1998) has also pointed to the importance of including "the power of culture," proclaiming in general terms the interrelations between culture and sustainability. The cultural dimension of sustainability contains a wide range of important areas, including heritage, arts, global media, diversity, and indigenous culture, among others. Through awareness of the weather, teachers and staff can support children in ways that can help lead the way out of unsustainability.

The kind of activities-based education that André conducts concerns life and human activities in a broad and fundamental sense of being in the world. Rethinking pedagogy for the future is necessary since traditional pedagogical approaches—emphasizing adjustment, memorization, or transmission—develop neither children's practical knowledge (that would enable them to survive in crisis) nor their dialogical engagement, critical thinking, or curiosity to search for new solutions. The stories Andrés tells about his practices highlight important capabilities necessary to build a sustainable future. Early childhood research agrees that the youngest among us must be allowed to engage in play, exploration, and meaningful inquiry-based approaches for personal and community growth.

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Notes

1. The "I" in this article is the first author, a professor in early childhood education working on a project at the intersection of exploration, cultural formation, and sustainability. The project is funded by the Norwegian Research Council through the KINDknow Research Centre (2018-2023), a center to enhance systemic research in kindergartens (years 1–6) on education for diversity and sustainable futures.
2. Kindergartens publish photos without identifying the children depicted therein.
3. Knut Hamsun (August 4, 1859 to February 19, 1952) was a Norwegian author who won the 1920 Nobel Prize in the literature. Hamsun's work spans more than 70 years and shows variation with regard to the person and nature.

4. No personal information is revealed through the documentation in the reports, since kindergartens publish photos without children's portraits.
5. The notebook did not show any of the staff or children's names or personal information, so that analysis could be done within ethical regulations.
6. YR is an application for weather prognosis and keeps a historical record of weather.
7. In narrative inquiry methodology, framing a research puzzle is central to the design process. It is considered a puzzle, rather than a research question, as narrative inquiry carries with it "a sense of a search, a re-search, a searching again." (Clandinin, 2013, p. 42).

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Children's Access to Urban Gardens in Norway, India and the United Kingdom

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ABSTRACT

Background: This study investigates access to gardens for children in Norway, India and the United Kingdom and their respective potentials for sustainability learning. The focus is set upon the significant variations concerning garden access within these three countries, within the specific context of urban gardening at a city scale. The article explores three case study cities: Stavanger, Norway; Mumbai, India; and Cardiff, UK. Previous research has shown that nature and garden experiences can provide play opportunities, skills and sensuous perceptions that may lead to the permanent retention of knowledge, and may awaken and unfold the child's interests.

Material and methods: Conceptualized in theories of situated learning and place-based learning, each researcher - native and/or living in Norway, UK and India, respectively - has gathered qualitative data and focused on the phenomena she found to be appropriate for the study of each respective city. The findings, based on literature studies and the author's own experiences and observations, are presented in form of narratives. A phenomenological and hermeneutical framework and critical inquiry is used to give relevance to the complex interrelations between the three researcher's different backgrounds and perspectives.

Results: The narratives elucidate rather different characteristics, practices, activities and values related to gardens in the three cities, where children interact in multiple ways with various kinds of garden spaces. Children are typically close to nature in Stavanger, while very small 'windowsills' characterize the many childhood interactions with gardens in Mumbai and in Cardiff, children may have access to both private and public gardens, depending upon their circumstances.

Conclusions: The three perspectives give inspirations for promoting children's ecology, sustainability, and intergenerational learning in urban garden spaces.

Keywords: children's access to gardens, environmental learning, education for sustainability, citizen science, intergenerational learning

INTRODUCTION

Gardens bring nature and culture together, and have been an important part of people's livelihoods across cultures. The English philosopher David Cooper (2006: p. 12) states:

> *"[everybody] possess the knowledge that enables us to [distinguish gardens] from those bits of the world that are not gardens. Gardens is a familiar term…".*

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Conceptualized in place-based and situated learning, and by means of narratives, this study will present the characteristics, practices and values related to children and gardens in the cities of Stavanger (Norway) Mumbai (India) and Cardiff (United Kingdom), and investigate the potentials of the different kinds of garden spaces for children's interactions with their ecologies and for sustainability learning. Given that children's experiences and practices at home and within their day institutions are not entirely separate, this study considers formal, informal and non-formal practices. This study understands children as those below the age of eighteen years (UNCRC, 1989).

The Three Cities: Stavanger, Mumbai and Cardiff

While recognizing great variations within the three countries, the study focuses upon urban garden spaces in Stavanger, Mumbai and Cardiff. Stavanger is Norway's fourth biggest city with approximately 130,000 inhabitants. Historically, the industry of the region was based on fishery and shipping until the early 20th-century. Today, engineering is the main industry, mostly related to the offshore petroleum industry, established in the 1970s. Mumbai (formerly Bombay) is India's most-populous city, with one of the highest population densities on the planet (Vazhacharickal et al., 2013; UN, 2010). Many of the 22 million people are migrants, seeking the work opportunities of the city, and living on streets and in undocumented slums (World Population Review, 2018).Cardiff, the capital city of Wales in the United Kingdom, has a population of 346,000 (Office of National Statistics, 2012). The city grew exponentially throughout the early 20th-century, mainly due to the centrality of Cardiff docklands within the coal mining industry.

Garden-based Learning for Children - Contextual Background

Epicurus (341-270 BC) established the first school in a garden, and saw the interrelationship between gardens and physical and psychological well-being (Stokke, 2011). The idea of using the natural outdoors as an integral part of children's education was later formulated by Comenius (1592-1670), Rousseau (1712-1771), Pestalozzi (1746-1827), Froebel (1782-1852), and Gandhi (1869-1948). Gardens can provide play opportunities, skills and sensuous perception that may lead to the permanent retention of knowledge, and may awaken and unfold the child's interests (Subramaniam, 2002; Desmond et al., 2004; Polito, 1995: 225; Cole, 1990). Multiple research studies have shown a connection between early experiences in nature, and the development of interest, motivation, skills and competences later in school and in adult life (Aasen Grindheim, & Waters 2009; Clements, 2004; Fjørtoft, 2001).

Today, garden-based learning is associated with innumerable (international) programs, activities, and research, in both formal, as well as informal education (Desmond et al., 2004), and has been related to science education and early childhood education for sustainability (Bell et al., 2009; Hedefalk et al., 2015). Yet, in some parts of the world, gardens are attributed with negative connotations, including child labour, which limits access to play, education and free development. Today, the ideas of naturalistic and environmental education, nutritional awareness and agricultural literacy, have found a new context in the garden (Subramaniam, 2002). To this end, Blair (2009: 17) states:

> *"Gardens ground children in growth and decay, predator-prey relations, pollination, carbon cycles, soil morphology, and microbial life: the simple and the complex simultaneously. … Gardens are intensely local...".*

Conceptual Framework

Sociocultural learning theories explain that practical activities and social contexts are essential to promoting learning processes for young children (Lave & Wenger, 1991; Rogoff, 2003; Vygotzky, 1986), including learning for sustainability transitions (Barth & Michelsen, 2013). 'Situated learning theory' underlines the idea of apprenticeship that includes authentic, formal or informal and often unintended contextual learning in social contexts whereby meaningful relationships between people and place are sought, while making connections to their prior knowledge (Lave & Wenger, 1991, p. 31). Garden spaces do offer authentic and complex learning spaces that challenge children to think critically and appeal to visual, kinesthetic, sensual and creative learning in formal and informal settings (Blair, 2009).

Place-based learning introduces children and young people to the skills and dispositions needed to understand local phenomena and the processes that underlie the health of natural and social systems essential to human welfare (Grunewald & Smith, 2008, p. xvi). Place-based education acknowledges the unique

characteristics of particular places, and can in this way better connect learning to children's and young people's lives (Smith, 2005).

METHODOLOGY AND METHODS

This is a qualitative study within a phenomenological and hermeneutical framework (Cole et al., 2015; Cresswell & Poth, 2017; Ödman, 2007; Yin, 2003). Phenomenology is a multi-dimensional term that describes how researchers through reflection can bring insight to the structure of their research experience and analysis (Cole et al., 2015: 153). Within a hermeneutical process, we always have a preunderstanding rooted in our complex and potentially distorted experiences and points of view, which influences our understanding and interpretation (Cole et al., 2015: 153; Grønmo, 2004: 236, 373; Ödman, 2007: 26, 102).

The three researchers were native and/or live in Norway, the UK and India, respectively, and found each other through their common interest in children and gardens. With the aim to elucidate the characteristics, practices, activities and values related to gardens and alternative garden spaces, accessible to children in the three cities, the following research questions were chosen: 1.) What kind of garden spaces – especially 'alternate spaces' are available to children in the three cities? And; 2.) What is the potential these spaces hold in terms of offering environmental learning opportunities and promote sustainable living? Private and public gardens were taken as the focus of the study, while school gardens are not considered, given the plethora of contemporary studies that consider this context.

As a theoretical framework for the study, critical inquiry was used, as this method gives relevance to and consideration of context related to critical thinking (Boylan, 2009). Critical inquiry is a dialectical process involving the comparative weighing of a variety of positions and arguments, while argumentation is seen as a way of arriving at reasoned judgements on complex issues (Battersby & Bailin, 2011). In line with the guidelines of Battersby and Bailin (2011) and Cresswell and Poth (2017: 59), the three authors had initial research conversations around the issue. These conversations revealed complex interrelations between the three researcher's different backgrounds and their perspectives. Therefore, each researcher has gathered data and focused on the phenomena she found to be most appropriate for the study of each respective city, based on literature studies and the author's own experiences and observations. In an attempt to include the author's reflective interpretations, and the reconstructions of their main arguments through analyses of their data, the findings are presented in form of narratives (Chase, 2013). These narratives cannot provide complete pictures. They are selective approaches to give a composite description of the investigated phenomena (Cresswell & Poth, 2017: 62). The narratives are also parts of the entire interpretive process, which reveals what is significant about the various available garden spaces and their potentials for offering children opportunities for sustainable learning and living. In adopting a critical inquiry stance, the research sought to understand the cultural, historical, social and educational contexts in which the three perspectives are embedded, with the awareness of the three researcher's own beliefs and biases (Battersby & Bailin, 2011; Cresswell & Poth, 2017).

Stavanger, Norway: Plentiful Nature Spaces - Untapped Potentials for Children's Access to Gardens

Norway has a mainly rural population, and as such, the people of Norway may associate gardening with agriculture and farm life (Francis & Hill, 1989). Especially in the northern regions of the country, aesthetic gardening, for instance, planting flower beds, is not a longstanding tradition in Norway, which can be attributed to the short length of the growing season. In Norway, outdoor education is an established tradition (Fjørtoft, 2001; Sageidet, 2016), illustrated by the existence of over 450 outdoor kindergartens (Lysklett, 2013). Yet, a recent survey showed that children's time spent outdoors has decreased (Skår et al., 2014). Undisturbed nature spaces are still close to most of Stavanger's inhabitants, even if the distances to such areas are growing due to urbanization since the development of the oil industry.

The central city park of Stavanger surrounds a small lake. Outside of the city center, a bigger park surrounds the Mosvatnet lake (covering 0.46 square kilometers). This park is used by surrounding schools for physical education. Another park around the Store Stokkavatnet lake (which covers 2,19 square kilometers) supplies facilities like canoeing, swimming, and outdoor arrangements for children. The Bjergsted park, north of Stavanger Old Town, is often used for festivals and concerts. Stavanger also has a recreation area around the Ullandhaug communication tower, placed at the highest peak of the Stavanger region (138 m.a.s.l.). It has been covered by heathland, pastures and moorland for hundred years ago. Between 1910 and 1970, the area

was planted with trees by children through annual school projects. The Ullandhaug area includes an ecological farm, through which a public foundation supplies various activities for different target groups in the school, health, and social sector (Stokke, 2011). It also includes the Stavanger Botanic garden, established in 1978. In the south-eastern part of Norway, which includes Stavanger, the wild flora and also traditional plants are under threat due to increased urbanization (Henriksen & Hilmo, 2015).

In 2002, Stavanger became a "green children's city" according to the government's 'green' city concept (established in 1996). Within green cities, kindergartens can become 'green kindergartens', when they work on projects focused upon sustainable development and environmental protection as part of everyday life. Gardening in kindergartens and schools is a rather slow upcoming trend in Norway (Haavie, 2013). Sageidet, Davis and Christensen (forthcoming) interviewed 20 five-year-old kindergarten children from Stavanger about their understandings of sustainability related issues. Only thirteen of these participants were aware of their kindergarten's gardens. Two of the children reported that they had no access to a residential garden. All but one of the children said that they liked to be in a garden.

Many Norwegian families have traditionally produces their own food like fruits and berries in their home gardens. This is no longer common, but Stavanger has four community gardens. 'Alternate spaces' used for gardening would include the garden division into one to four square metres, which people can buy in the eastern urban old part of the city. These 'neighborhood gardens' were established in 2015 by a non-profit limited company of ground owners, which also is promoting large-scale collaboration with the public in this part of the city (Bjørno, 2011).

What is the potential of Stavanger's garden spaces in terms of offering learning opportunities and promote sustainable living?

Most children in Stavanger have access to various and extensive, natural and more urban areas and gardens that provide plenty of possibilities for exploring. Children can get acquainted with local and foreign species through walking in the city, the public gardens, and the surrounding landscapes. They may also learn about unsustainable foreign species that disturb the natural local biodiversity (Gederaas, Moen, Skjelseth, & Larsen 2012). Most of Stavanger's kindergartens and schools have at least occasional collaborations with the public offers of garden related activities and events. According to Sageidet (2016), sixty present of Norwegian kindergarten teachers had an interest in gardening, but only a quarter of them initiated garden activities with their children in the kindergarten.

Mumbai, India: 'Alternate Garden Spaces': Children's Access to Gardens in Highly Urbanised Mega-cities

In 2005, over 90% of the children in India were attending a school, but this equated to only 54.5% of the children in the slums of Delhi. Free and compulsory basic education for children aged 6-14 years became a legislated fundamental right in 2009, thereby increasing school enrolments and reducing drop outs (Tsujita, 2009). However basic education is still lacking for many children, and research in educational disparities is very limited (Govinda & Sedwal, 2017).

In rapidly growing mega-cities, open spaces or garden spaces where children can play and romp freely are often scarce and not accessible to most children. While the WHO recommends an open space ratio of 12.5% of the entire space needed for each individual, Mumbai has only 0.003% open parks and play areas per inhabitant (Godbole, 1998). Only 10 of Mumbai's 30 square kilometres of open space are accessible to the people. This equates to only 0.88 square meters per person, and is one of the lowest open space ratios for a major urban city in the world (Indiaink, 2012).

Space is all the more limited for the approximately 62% of Mumbai's population who live in slums, with houses often being one room structures shared by entire families. Mumbai does, however, have some innovative and exciting opportunities to experience natural surroundings and gardens. For example, the Sanjay Gandhi National Forest, which consists of 103 square kilometers of forested land in the suburbs. This was originally a forest lying on the outskirts that has slowly shifted to being a central part of Mumbai today. There have been major conflicts between wildlife and humans in this forest, in particular the leopard population has often resorted to attacking the humans living there, when faced with encroachment of its natural habitat. Another example is the Maharashtra Nature Park (MNP), which is a large open natural park right in the centre of Dharavi, one of the world's biggest slums. The park is built on land reclaimed from the largest garbage dumps in the city. It offers a home to many native plants, mammals, reptiles and birds.



Figure 1. A young person sitting on the windowsill to tend to the 'window sill' garden in Mumbai

However, it is not open to the public, nor unstructured play opportunities available, rather activities are limited to structured educational tours for schools or organized groups. The MNP is closed after 4pm and this is when the park belongs to nature, as mentioned by the director 'it's their place and they take over'. This offers a novel, more than human approach to managing natural woodlands and gardens where nature is not commoditized, but what kind of nature experiences are available for children on an everyday basis?

What is the potential of Mumbai garden spaces in terms of offering learning opportunities and promote sustainable living?

What opportunities for children are afforded in these constricted built-up concrete jungles for to 'touch' and get connected with nature? This questions stem from my own life experiences growing up in Mumbai. A series of photographs was taken during one of my trips back to Mumbai in recent times. **Figure 1** shows a person climbing over the windowsill, hanging quite precariously on the ledge to tend to the 'window sill garden'. A deeper analysis of the photograph offers insight into the following three things:

1. Many of the plants appear to be herbs, medicinal plants. Having a firsthand understanding of the native flora, I can, with some authority, conclude that this garden is more of a 'utility' garden rather than a 'show' or 'admire' garden. The person in the photograph seems to attach value to the benefits arising from these plants.
2. There appeared to be a ritual to the way this person was tending to the garden – in a systematic and regular fashion.
3. Most of the materials used in this garden were recycled – from old buckets and paint pots acting as planters to old plastic bottles being utilized instead of watering cans.

The next two photographs (**Figure 2**) depict another kind of 'on the sewer' garden – this one being next to an open flowing sewer. A closer analysis of these photographs offers insight into the following three things:

1. Places like 'sewers' could still hold opportunities to be developed as green spaces and gardens.
2. These places then have the power to negate the filth and stench that emanates from these sewers – at least for the people engaged in the gardening process.
3. These places therefore hold a potential for 'escape' from the everyday cluttered homes and lives.



Figure 2. An "on the sewer" garden in Mumbai



Figure 3. A "roadside garden" in Mumbai

The final photographs (**Figure 3**) are of a 'roadside' garden – it has been created on the sliver of space available just outside the hutment on a busy road.

Another closer look at this garden highlights the following:

1. The plants grown here, too, point towards a utility aspect rather than having a show garden, cultivated for medicinal or nutrition purposes.
2. The risk in taking care of these plants given that they were on the side of a really busy road.
3. For creating this garden, again recycled materials from the household were used like buckets, sticks and canisters.

Based on people's situation of living in these parts of Mumbai, we can associate these pictures with learning related to social engagement of whole families. Parents and grandparents would be the initial cultivators of these gardens. The potential of these 'alternate' garden spaces hold for children and young people is clearly immense, but still unexplored. For many poor urban households, home gardens are a crucial day-to-day survival strategy. Yet, there is little research on home gardening in India (Raj et al. 2017). Such home gardens need continuous management and care, which, in most cases, is done by woman. Some slums have community-based or non-governmental organized child-care services that provide health, nutrition and non-formal education for pre-school aged children (Tsujita, 2009).

Mediated Nature Encounters – A Narrative from Cardiff, UK

City gardens and parks within the United Kingdom often have more in common with "encapsulated countryside" (Goode, 2014), composed of ancient woodlands, hills, marshes, meadows and heathland, than they do with a traditional town or city-scape. Gardens and their counterparts in the UK hold an important place within the natural imaginary, and have done since at least the Victorian era, when botanic gardens, glasshouses, public gardens and squares and even small bell jars displayed in town houses, showcased "botanical wonders" from around the globe, drawing the large numbers of people living in towns and cities to these spaces (Mabey, 2015: p. 23). Within the present day, every city and town within the UK has benefited from this legacy, with gardens, parks, squares become increasingly significant spaces that "provide links with nature within the town environment" (Goode, 2014: p. 158), in the face of accelerated urbanism. These spaces vary from Victorian municipal parks, established during the industrial revolution for the health and wellbeing of the public, to formal gardens first established within fashionable residential districts in the 18th-century, to private gardens, which are "by far the most extensive of any single category of urban land use", where in some towns "they cover up to 50%" of the urban area, while 87% of UK households have domestic gardens (Goode, 2014: p. 175).

The city of Cardiff is considered a particularly green city by UK Standards and private gardens make up 25% of the urban area (Goode, 2014: p. 175). Alike to the rest of the UK, such gardens are larger for older homes, whereas houses built within the past 30 years often possess far smaller gardens (Goode, 2014). More suburban areas in the North of the city tend to have large gardens, while apartment blocks surrounding the cities traditional Docklands have significantly smaller gardens and in many cases, they are non-existent. Within such spaces, green space initiatives have evolved (see, for instance, http://www.cardiff.ac.uk/community-gateway), allotments and an associated farmers market.

In terms of access to public green space, there are currently 58 formal parks in the city. Aligned with many cities in the UK, open space, including green and blue space are increasingly valued in terms of their multiple social and ecological benefits. Another instance of informal environmental learning within the city of Cardiff includes foraging activities that are organised by individuals and not-for-profit groups. For example, "wildfood foraging workshops" occur across the city (see: http://www.wildfooduk.com/foraging-trips/cardiff/), while "farm Cardiff" (eggseeds.com/) maps coincidental underused area of the cityscape that could be used for food growing.

Local councils and local environmental groups have somewhat recognized the need for interconnections between the human and the non-human world as actions on the environmental crisis (Latour, 2013), and attempts have been made to move away from city parks and gardens functioning as spaces that merely showcase the more spectacular features of the natural world, towards providing increasingly diverse habitats for a wider range of species. This includes the creation of hay meadows, wetlands and native woodlands (Goode, 2014). Such spaces have been used by educationists for many purposes, including as field studies for nearby schools, as was the case for Battersea Park in the 1980s (Goode, 2014). Botanic gardens within the UK have recently begun to develop outreach learning programs that increase the visibility of the links between young people's everyday lives and plant ecology, as part of sustainability education (Dunkley, 2016). Nevertheless, the educational potential for domestic gardens and so called 'edgeland' spaces (Farley & Roberts, 2012), such as canals and grass verges, in terms of environmental education requires further exploration.

Potential garden spaces in Cardiff – offering environmental learning opportunities through citizen science

Garden ecology has largely been "ignored by ecologists" (Goode, 2014: p. 176), and its potentials for environmental learning have been under addressed. Environmental citizen science, which involves the collection of scientific data, offers a methodology by which to engage large numbers of people within a closer observation of residential ecosystems (Cooper, Dickinson, Phillips, & Bonney, 2007). The benefits of citizen science in terms of environmental learning are increasingly acknowledged (Oberhauser & LeBuhn, 2012; Paige et al., 2015; Vitone et al., 2016; Wals et al., 2014). To demonstrate the potentiality of citizen science as a means of engaging children with gardens through processes of social learning, this section focuses upon a bee-monitoring citizen science initiative, known as Spot-a-Bee (http://spotabee.buzz/), run by academics at the *Cardiff University*. The project was developed by the School of Pharmacy and the Sustainable Places Research Institute, both at Cardiff University and built upon existing research within the School of Pharmacy, which examined the food sources of bees in rural areas, leading to the discovery of a honey with particularly beneficial microbial properties. Less is currently known about the food sources of urban bees, this citizen science project

therefore aimed to gain an insight into the flowering plants within people's gardens and surroundings that bees were feeding off. The project used crowd-sourcing of bee-feeding images to identify popular plants for bees during the spring and summer months. These images were then uploaded by participants to an online portal and form these results a map of city bee sightings is created for all participants to view (http://spotabee.buzz/results).

Beyond the scientific insights that this citizen science project enables, there are also opportunities in terms of social learning (cf. Barth & Michelsen, 2013; Dickinson et al., 2012; Lave & Wenger, 1991; Vygotzky, 1986). Spot-a-bee stimulates close-encounters between children, their families and their gardens or nearby green spaces, as such it enables ecological learning to occur within a context that ensures that learning is grounded within the everyday situated existence of these individuals. Moreover, in focusing in upon the minutia of bee-plant interactions within nearby green spaces, children gain a knowledge of pollination processes, a key factor within global food security, which enables the acquisition of a knowledge that can be transferred into other learning contexts, at different life stages. The social component of the learning experience is also extended by the process of needing to identify the plants that the bee is feeding off, as well as the bee itself, a process that involves fielding responses from peers, adults, social media and the academics who run the *Spot-a-bee* website. Though insights into the effects of participation upon children from the perspective of young people and their parents are yet to be gathered, it is argued here that citizen science initiatives that attempt to enhance the visibility of connections between the human and natural for the young people growing-up within urban environments thus constitutes a means by which to sensitise children and their families to the ecology of the gardens that surround them.

DISCUSSION

The presented narratives show significant variations concerning children's garden access and urban gardening in Stavanger, Mumbai, and Cardiff. In Stavanger, which is rather representative for Norway, nature is not far from anywhere, and outdoor recreation and education are established traditions, while parks have only become valued for recreation since more recent times. In the city of Cardiff, there are a range of both public and private garden spaces that are available for children's use, which is largely a legacy of industrialization processes, through which the importance of access to green space was highlighted. While education for all is taken for granted in Norway and UK, in India, about 17% of children aged 5 to 14 are out of school. Children's access to gardens and green spaces in cities has globally decreased (Markevych et al., 2014), but there is arguably no shortage of gardens and affinity spaces in the rather small cities of Cardiff and Stavanger. In spite of some outdoor opportunities in two huge parks, the availability of green spaces for children is very scarce in Mumbai, especially for the majority that live in slums and/or in very small housings. For these children, informal learning independent on school or community efforts may be crucial, and their access to gardens is strongly dependent of their families' access to gardens and their families regard to alternative garden spaces like 'window sill' gardens, 'on the sewer' gardens, and 'roadside' gardens. The children may experience meaning, creativity and learning opportunities when their families use these gardens for food production (Ruby et al., 2007). According to Keatinge et al. (2012), home gardening can give an important contribution to attain the Millennium Development Goals or the newly formed Sustainable Development Goals to overcome global undernutrition, and to improve health (United Nations, 2015). The production and consumption of locally grown food has been an important part of urban sustainability. Ecologically and socially just urban environments are dependent on the ability of economically marginalized urban populations to produce, access and consume healthy and cultural appropriate foods (Agyeman & Simons, 2012: 85). Such home gardens can be adapted to culturally specific diets, and can give children knowledge passed through generations, both about ecological and medicinal properties of plants and of their own culture.

Domestic gardens are very common in UK, including in Cardiff (Goode, 2014) and also rather common in Norway and Stavanger. Formal educational efforts like green space initiatives in Cardiff and community gardens in Stavanger provide activities related to food growing and foraging that have been neglected during recent decades. This is in line with a more recent awareness of both local environments, gardening, and place (Gruenewald & Smith, 2008, p. xxi). In this respect, we should be better aware of the learning potential of home gardens for children in mega-cities like Mumbai. Community or non-governmentally organized centers could support families and/ or mothers and children with garden related knowledge and offer opportunities for sharing this through organized groups. This kind of learning in engaging groups, could inspire both adults and children to expand their interest to garden ecology and to develop a holistic view of the natural

DISCUSSION

Children's Experiences of Being Outside in Nature

There is a very similar distribution of outdoor versus indoor preferences among the children of both countries, in spite of different climates, cultures and histories. Most of the children in this study liked to be outdoors, but some children did not like it. The Norwegian children made more comments about longer walks outside of the kindergarten, and some of them did not like it, possibly because they have uncomfortable experiences with such walks. Kindergarten teachers should acknowledge children's unique differences, emotions, personal levels of mastery, and possibly different geographical or cultural frames of references about nature (Henson, 2003; Sageidet, Almeida, & Dunkley, 2018), and should help each individual child to develop her/his own personal relationship to nature and the outdoors (Fjørtoft, 2001; Henson, 2003; Ministry of Education & Research 2017). Several children from both countries emphasized being with friends and having fun as important in connection with outside activities.

Many Norwegian kindergartens have a strong focus on nature and outdoor activities (Fjørtoft, 2001, Sageidet, 2016), and children spent a lot of time outside. The outdoor activities, mentioned by the Norwegian children – such as climbing trees, finding rats or bird droppings, catching shrimps and fish, and picking flowers - seem to reflect that they have many and diverse opportunities to explore, and to be closely in touch with nature. This Norwegian tradition may inspire kindergartens, independent of country, climate or urban versus rural locations, to provide children with more opportunities to connect with nature and thereby to the more than human world (Næss, 1989; Sageidet et al., 2018; Weldemariam et al., 2017).

Playing with games, sand or water, and looking after snakes, are among the favorite outside activities for the Australian children. Some Australian children's statements such as making "special rockets" and "volcanoes", finding "fossils" or "working with wood", "picking up rubbish", and "helping and tidying up", may give the impression that the outdoor activities in Queensland's kindergartens possibly have a somewhat stronger relation to science learning and adult guidance (cf. DEEWR, 2009).

From a holistic, interdisciplinary and social-constructionist perspective, all of the 40 children's personal preferences have potential to help develop sustainable understandings (Bell, 2016; cf. Vygotzky, 1986; UNESCO, 2012, 2014). While putting their preferences in action, the children get opportunities for language development, problem solving, and the formation of thought constructs and cultural understanding (Hromek & Roffey, 2009; cf. Lave & Wenger, 1991). Some children's favorite things to do are exciting activities such as making soap bubbles, and having parties, drama play and fire emergency training. Hromek and Roffey (2009) explain that there is a "natural affiliation between children, play, and the desire to have fun" (Hromek & Roffey, 2009, p. 626). Social and emotional learning is related to well-being, an issue that is addressed by the third sustainable development goal (UNESCO, 2015), and may be related to the development of values, attitudes and everyday behaviors through global citizenship education (Hromek & Roffey, 2009; Lee & Fouts, 2005; UNESCO, 2014).

Children's Understandings of Recycling and Conserving

The children from both countries showed a fairly complex understanding of rubbish. About half of all children interviewed seemed to have an initial understanding of the term "recycling". Several of the children, mostly from Queensland, had advanced understandings of recycling, garbage, and food cycles in nature with their threatening consequences for animals.

Most of the Norwegian, and nearly all of the Australian children were knowledgeable about the rubbish collection and sorting at their kindergarten, but only half of the children in both countries were aware of such practices at home. Nevertheless, the statement of Alma, who sorted rubbish "… when [she] had group time…", seem to confirm that children may see occasional collecting or sorting of rubbish as a kind of categorizing activity, while regular recycling activities would make them familiar with it (Kahriman-Öztürk et al., 2012).

Saving of water was familiar to the children in Australia, where drought can impact upon the communities where the children live. The Norwegian children seemed to be uncertain about problems related to water use, as fresh water is an abundant resource in Norway. They seemed to be more familiar with restrictions on availability of warm water. Several children of both countries had some understandings of a need to save electricity, for example in relation to warming up water, having light, using electronic equipment, and saving money.

connect them with nature within the town environment (Goode, 2014: p. 158). Through personal interactions with those garden spaces, actually available to children in their own cultural and natural settings, they can get insights into ecological, economic and social interrelationships (Subramaniam, 2002).

Even if children in Cardiff and Stavanger may get a better theoretical understanding through the formal learning of scientific terms or scientific methods (categorization, counting, mapping etc.), the children in Mumbai may probably better understand the essential meaning of interdependency and interrelations, or for example of reuse or recycling of materials. The potential for environmental, science and garden learning in families or other informal or non-school settings is often underestimated, and it is necessary, not to adopt purely academic learning goals (Bell et al., 2009). Among other outcomes, children may come to generate, understand, remember and use concepts, explanations, arguments and facts related to science, even if adult caregivers play a critical role in supporting their learning (Bell et al., 2009).

Citizen science education, as it is realized in Cardiff, or outdoor learning as practiced in Stavanger, also engage groups of children and adults in social and place-based learning situations, but they may provide a stronger potential for participation in scientific activities, for using scientific language and tools, and for developing each child's identity as someone who knows about, uses, and sometimes contributes to science (Bell et al., 2009: 4; Cooper et al., 2007; Light, 2003; Wals et al., 2014). Even though children may not entirely understand the scientific, environmental and sustainability related ideas behind the use of (alternative) garden spaces, they can gain benefit from their participation together with peers and adults (Lave & Wenger, 1991, Vygotsky, 1986).

As the narratives of this study may give insight and inspire researchers and educators, children might gain similar inspirations and insights by hearing from the lifeworld of peers in other cities or countries. They may also become curious about these other children's garden spaces and how those were used. They may acquire awareness of subjective contexts and world views, including their own (Bennett, 2009). Metacognitive learning in general and garden learning in particular, offer learning strategies that may help children to improve their learning motivations and capacities, and their retention of knowledge (Desmond et al., 2004; Ruby et al., 2007; Stokke 2011; Subramaniam, 2002). By learning about and appreciating places, children begin to understand and to question and they may develop a readiness for social action, and, with the appropriate adult guidance, they may develop the skills needed for democratic participation (Gruenewald & Smith, 2008). In this connection, intercultural learning may even contribute to the prevention of school dropout of mega-city children, if schools, community-based or non-governmental centers would place a focus upon it (Tsujita, 2009). Such intercultural learning through metacognitive perspectives may give all city children a basis for understanding the interrelationships between garden spaces in the local environment and the earth as a global environmental system, and between their family or peer group and the world family or global citizenship (cf. www.earthcharter.org; Corcoran, 2004; Johansson, 2009; Pope Francis, 2015; Sund & Öhman, 2011; UNESCO, 2012). A utopian idea would be to give children access to each other's (alternative) garden spaces, through providing opportunities for direct digital exchange, where children could give each other practical garden advices or discuss species, local soils, or food growing, for example, by personal e-mails to each other.

CONCLUSION

Gardens are associated with differing practices in Stavanger, Mumbai and Cardiff. While children in Stavanger have access to large gardens and nature near spaces, in Mumbai, a majority of children's access is restricted to alternative garden spaces that appear to be very small, for example, at the 'windowsill' scale, while in Cardiff, the numerous city gardens are both traditionally and multiply used, with a focus on giving children access.

Even very small alternative garden spaces in India have a potential for urban home-garden food production, acknowledging health, cultural specificity and a sustainable living. They can give children knowledge on plant species and ecological interrelationships through intergenerational learning. Citizen science projects, such as that as demonstrated through the case of Cardiff, and outdoor learning, such as those occurring in Stavanger, have a stronger potential for academic learning and using scientific language and tools. The specific garden spaces in all of the three cities provide place-based learning situations, which have the potential to enhance conceptual understanding related to science, environment, nature, culture, and society, and for a sustainable living. The comparison of these three perspectives may offer mutual inspiration

for the role of gardens in promoting learning, and may contribute with sharing of learning opportunities that will be valid in a global scenario for education for sustainability.

To develop children's access to gardens, and the educational potential of garden activities, may contribute to the promotion of children's attention, respect and care for both their home place and other places (Gruenewald & Smith 2008). Children's learning about sustainability related issues should include insights into their peer's living conditions. Narratives and individual histories may, in this respect, be easier to understand than, for example, pure factual knowledge, especially for small children, and may promote children's interest to a closer learning inquiry into global interrelationships in general, and gardens and sustainability issues in particular. Further research is needed to explore what various (alternative) garden spaces actually mean to children, and what kind of learning actually may happen in these places, for example by means of action research or interviews with children.

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No potential conflict of interest was reported by the authors.

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