

Evaluation of Norwegian education research

Report from the international expert committee

Final Report 22 February 2018

Evaluation
Division for Society and Health



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The report can be ordered and downloaded at
www.forskningsradet.no/publikasjoner

Graphic design cover: Melkeveien designkontor AS

Photo/illustration: Shutterstock

Oslo, March 2018

ISBN 978-82-12-03674-1 (pdf)

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Executive Summary

In 2016, the Research Council of Norway (RCN) took the initiative for a broad-based evaluation of education research in Norway. The evaluation was called UTDEVAL. The RCN appointed an international expert committee to carry out the evaluation. The committee's mandate specified that the evaluation would assess Norwegian education research with regard to its quality, research capacity, strategic focus and cooperation, as well as its relevance and societal impact. It would also provide an overview of the position of Norwegian education research in the international research landscape. Finally, the evaluation would offer recommendations on how to further develop the research field and what should be given priority in order to address future challenges and needs.

The RCN invited institutions in Norway to take part in the evaluation. The institutions were instructed to submit institutional self-assessments for the research areas that they wished to have evaluated. In this context, a research area should be understood as the department or faculty level within a university or a university college. It could also be a research centre. The institutions could also submit research groups to the evaluation. Institutions themselves chose whether or not they wished to be included in the evaluation. The final submitted material included examples of publications, CVs of selected researchers and impact cases, both at research area level and for research groups. A total of 16 institutions participated in UTDEVAL, covering 36 research areas and 46 research groups. All but two of the 16 institutions submitted between one and ten research groups.

In addition to the material submitted to the evaluation by the participating institutions, other material or data were also collected. They included a comprehensive user and impact analysis, consisting of a web survey, interviews and analyses of the submitted impact cases. A similarly comprehensive personnel and publication analysis was also conducted. The results of these analyses were presented to the committee during the course of the evaluation.

For the evaluation of research groups, the RCN appointed six expert panels, each chaired by a committee member. The expert panels covered five broad thematic areas within education research.

Among the results of the evaluation, evidence of publication activity and a citation analysis showed that there are a number of institutions and departments with a strong impact internationally, and high citation scores. Education research from these institutions is clearly visible in the international research arena. The data supporting this consist of publications in English and in journals with a predominantly foreign audience, highly ranked publications, including publications in top-ranked journals, citation scores, and international collaborations. There are clear indications that a number of institutions and their various research environments have an internationally strong and competitive standing. There are also examples of institutions that are less advanced in this respect.

At research group level, there are large differences between the groups with respect to research quality and publications. Some groups are very strong in terms of research capacity, are internationally recognised and maintain an overall quality that is on a par with other world-leading research groups. The groups that are deemed weaker in terms of research capacity tend to publish much more in the Norwegian language, mostly in local publication channels that are not externally peer reviewed. Recruitment is also more local and national than what would be expected.

It is suggested that research groups within Norwegian education research institutions need to pay more attention to the recruitment of PhD candidates and early career researchers. They also need to develop more attractive career opportunities for existing staff. Available positions should be advertised more broadly and preferably through international channels. There is also room for improvement when it comes to professionalisation of the leadership of research groups and the

creation of internal strategies. Leadership strategies should include clear, realistic goals and plans for how to attain them, a clear idea of the resources needed to realise these goals, and a clear recruitment plan that takes account of the context of competitive academic work.

Selected key messages from the evaluation committee include:

- Several institutions that participated in UTDEVAL performed well with respect to their quality and research capacity.
- There is evidence of societal engagement within research agendas. However, this is often evidence of dissemination activities rather than impact.
- There is evidence that education research has a high degree of impact on the policy and practices of county authorities, municipalities (*fylkeskommuner, kommuner*) and kindergartens/schools.
- There is some evidence that Norwegian education research makes a contribution to the international research front, but the balance is not optimal between publication in local publication channels with limited distribution and quality control, and high-ranking international, peer-reviewed journals.
- There is evidence of strong collaborative links between institutions throughout Norway. Clusters are often formed around the largest institutions, which results in strong links at the regional level.
- The evidence relating to international networks shows a wide range of activity, although this could be further enhanced. Researchers need to take more intensive part in international research collaborations based on a long-term perspective.

A complete set of key messages is presented in Chapter 2. Recommendations from the evaluation committee include (but are not limited to):

- Strong research environments and units within the participating institutions need to further develop collaboration with equally strong, or stronger, environments and units within institutions abroad.
- Support for researchers and research groups should be based on past performance and the quality of the research. The selection of research groups, allocation of time for research, and other kinds of internal support mechanisms should be based on transparent quality criteria.
- More emphasis on research performance and output would be beneficial. Publications in English, and publications in highly ranked journals or by prestigious publishers should to be more highly valued in internal assessments.
- More emphasis needs to be put on the importance of both national and international strategic collaboration, with researchers and users, that has an impact on society.
- The RCN should issue calls and ensure that funding is available for research projects that target practice-oriented problems of high relevance and require the involvement of both academic researchers and users.
- The RCN should launch a support programme for academic leadership and management, targeting the establishment and development of strong research structures, research environments and research systems.
- The RCN should launch research programmes to stimulate closer cooperation between education research and teacher education. More efforts need to be made to strengthen the link between education research and teacher education. Several education research programmes have had a close link to teacher education. This has resulted in positive synergies.

The full list of recommendations is presented in Chapter 3.

1 Introduction

1.1 Background to the evaluation

The main strategy of the Research Council of Norway (RCN) identifies education as a research area that must be strengthened in order to promote sustainable solutions in society and the business sector. The RCN's strategy and recommendations for future efforts in this research area must be based on sound, robust evidence. The RCN has therefore taken the initiative for a broad-based evaluation of education research in Norway. The evaluation is called UTDEVAL.

The RCN has carried out several subject-specific evaluations, but the multidisciplinary research field of education has never previously been evaluated. Research in the field of pedagogy in Norway was evaluated in 2004, and the evaluation showed that the area was fragmented, with a diffuse distribution of resources, varying scientific quality and weak international orientation. Over the past 10 years, a number of measures have been implemented to strengthen education research in Norway.

Overviews of resources and results in the field of education research have been compiled since 2007. The reports show a diverse research field under development. Since 2007, research and development (R&D) activity in the field has increased dramatically, recruitment to research has been strengthened, and scholarly publication has seen relatively strong growth. The reports also show that the research environments have acquired a considerably higher level of expertise and that this is especially the case for teacher education programmes.

The objective of UTDEVAL is to identify and analyse key trends in Norwegian education research, to uncover strengths and weaknesses with regard to scientific quality and research capacity, strategic focus and cooperation, relevance and societal impact,¹ and to recommend measures to strengthen these areas in future.

Today research on education is conducted within many subjects and/or thematic areas, and a wide variety of data and research methods are used. The evaluation investigated knowledge flows and cooperation between these research environments, and explored conditions for interdisciplinary research. At the same time, the evaluation built on the knowledge developed in other evaluations and studies of the field in order to avoid overlapping and duplication of studies.²

The evaluation was intended to provide a sound basis for strategic decision-making by various actors in the R&D system, as well as guidance on future development of the field for the research institutions, the RCN, educational authorities and other relevant stakeholders, for example practitioners. The evaluation aimed to be particularly relevant to the Ministry of Education and Research in its efforts to develop a new research strategy for the area of education.

¹ Research Excellence Framework (REF) 'Assessment framework and guidance on submissions' (REF 2014,2011b) defines 'impact' as: *An effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia.*

² In addition to the subject-specific evaluations already mentioned, an evaluation has been carried out of the Strategic Projects – University Colleges funding scheme (SHP) (2010) and an overall evaluation of the Programme for Practice-based R&D in Primary through Secondary Schools and Teacher Education (PRAKSISFOU), and the Programme for Educational Research (UTDANNING2020) (2012).

1.2 Objectives and scope of the evaluation

1.2.1 Definition and specification

Education research encompasses all thematic areas related to education that explore the conditions, contexts, objectives, content, organisation, work methods, results and impacts of educational programmes. The national R&D statistics define education research as follows:

Teaching and learning, educational content, curriculum and forms of assessments, professional education and professional practice, management, administration and organisation, and the role of the education system in working life and society at large.

The research field encompasses research on early childhood education and care, primary education, secondary education, vocational education and training, and higher education, as well as adult learning and learning that takes place in the workplace and/or in other learning arenas. The key research disciplines in the field are pedagogy, didactics and special needs education, but the field also encompasses research in disciplines such as psychology, sociology, political science and economics, among others. Last but not least, through school subjects that are included in the curriculum, this field is linked to practically all academic disciplines. Therefore, it is really an interdisciplinary field.

The research field can be described in various ways and it can be divided into the following main areas:

1. The role of the educational system in the workplace and society at large: Research on how the education system operates compared with other sectors of society and in relation to national and global change processes. This includes research on education and social inequalities, inclusion and integration, cultural citizenship and personal formation, the family, children's and adolescents' upbringing and health, as well as on obtaining qualifications for working life and value creation. Participation in, completion of and dropping out from education are key research areas.
2. Educational policy, management, administration and organisation: Research on management, administration and organisation and the interaction between management levels and actors. This includes research on the relationship between resource utilisation and the achievement of results, as well as the education system's structure, transition schemes and organisation at the programme level. Key areas of research are the implementation of reforms, and development and change within the sector.
3. Educational content, teaching, assessment and learning: Research on educational objectives, content, teaching and work methods, as well as forms of assessment, learning and development processes and learning outcomes. This includes research on the interaction between formal and informal learning arenas and the use of learning methods of various types. Other relevant topics are new and inquiry-based forms of teaching and learning, learning in and across various subject areas, participation by children and adolescents, adapted education and special needs education.
4. Professional education and professional practice: Research on teacher education programmes, the teaching profession and other professions in the education sector. Key areas in this context are research on the capacity of professional education to qualify students and prepare them for the transition to professional practice. This also includes research on professional development, knowledge-sharing and the development of tools, systems or models that promote knowledge-

based practice in education. Research on qualification and competence development of teachers, new work methods and organisational models is relevant in this context.

1.2.2 Mandate

The RCN formulated a mandate for the evaluation. The mandate specified that the evaluation would assess Norwegian education research with respect to quality and research capacity, strategic focus and cooperation, and its relevance and societal impact. It was also tasked with providing an overview of the position of Norwegian education research in the international research landscape. Finally, the evaluation was expected to offer recommendations on how to further develop the research field and what should be given priority to address future challenges and needs.

The dimensions that were evaluated are described in items 1–3 below. For these items, the evaluation focused on how the actors organised and coordinated their activities to maximise the use of resources and create synergies through interaction.

1. Quality and capacity of research

- Norway's contribution to the international research front
- The quality of Norwegian research groups in an international context
- Publication activity and citation analysis
- Recruitment needs and quality of researcher training
- Capacity and expertise in emerging research areas
- Access to data and infrastructure for storage and sharing of data
- Balance between basic research, applied research and commissioned research

2. Strategic focus and collaboration

- National research collaboration as well as bilateral, Nordic, European and international research collaboration
- Collaboration and division of labour between research institutions and between key actors in the R&D system for education
- Conditions that promote collaboration between Norwegian and international research actors, and instruments that may strengthen Nordic cooperation and cooperation with the EU and North America

3. Relevance and societal impact

- Interaction with actors that have an interest in and/or are affected by the research conducted, including the level of user participation in research and user-driven research
- Relevance and benefit of the research for policy development, public administration, the professions and professional practice, e.g.:
 - Use of research in political decision-making processes
 - Use of research in teacher education programmes
 - Use of research in public administration of education at state and local levels and at selected educational institutions
- Research dissemination, knowledge-sharing and communication

It was clear to the evaluation committee that this was not an evaluation of individual institutions, faculties or departments. It was education research in Norway as a whole that was to be evaluated – except for the quality of research groups in the international context, which was to be evaluated specifically. No ranking of institutions, faculties or departments was to be carried out. While institutions, faculties and departments or other units are mentioned and used as examples in the following, the intention was not to present a ranking of them in a comparative and consistent way, but to exemplify and build a picture of education research in Norway as a whole. Thus, the reader may find, for example, that some institutions or research groups are mentioned a few times more than some others. It was not the intention on the committee's part to mention some more often than others, but to provide relevant examples and build an aggregate picture of education research in Norway. The evaluation committee's decision to work and to present its findings and conclusions in this way was deliberate.

It is perhaps inevitable that participating institutions, or research groups or other units, will wish to see how they were assessed and rated. One consequence of the mandate's focus and delimitations is that readers who are looking for the outcome of a specific research group on each of the six criteria it was evaluated against (more details in section 1.5), or the outcome on all nine criteria that a specific institution was evaluated against, may feel that their expectations are not fully met. Even though scores were given when assessing research groups and institutions, it was not the committee's task to focus on individual research groups, departments, faculties or institutions, nor to present the assessments for each evaluated unit in relation to each evaluation criterion.

1.3 How the evaluation was organised

The RCN appointed an expert committee that was tasked with evaluating education research in Norway. The committee had no possibility to influence the terms of the mandate. While the committee found some aspects of the mandate more important and relevant than others, efforts were made to address all the terms of the mandate. However, the committee placed more emphasis on some aspects than others. The mandate's specific terminology was also retained for reasons of clarity.

The members of the committee were:

- Mikael Alexandersson, University of Gothenburg, Sweden (Chair of the committee)
- Jannette Elwood, Queen's University Belfast, United Kingdom
- Steffen Handal, Union of Education Norway
- Kristiina Kumpulainen, University of Helsinki, Finland
- Paul Leseman, Utrecht University, the Netherlands
- Kay Livingston, University of Glasgow, United Kingdom
- Hege Nilssen, Norwegian Directorate for Education and Training
- Louis-André Vallet, CNRS & Sciences Po, France
- Pavel Zgaga, University of Ljubljana, Slovenia

The evaluation committee held six formal meetings during the course of the evaluation.

The RCN invited institutions in Norway to take part in the evaluation. As other national evaluations had been conducted shortly before UTDEVAL (the social sciences institutes; the humanities field) or will be organised in parallel with or shortly after UTDEVAL (the social sciences field), institutions could choose which evaluation they wished to participate in. Consequently, there are institutions that carry out education research that did not participate in UTDEVAL; they may, for instance, have

chosen to take part in the evaluation of the social sciences field instead. Thus, participation in UTDEVAL was voluntary. Moreover, those who took part in the evaluation did so to a varying degree. It was possible to participate with all education researchers at the institution, or a selection of them. The list of participating institutions is presented in section 1.6.

The institutions were instructed to submit institutional self-assessments for the research areas that they wanted to have evaluated. In this context, a research area should be understood as the department or faculty level at a university or a university college. It can also be a research centre. The self-assessments followed a set template (see Appendix B). The institutions could also submit research groups to the evaluation. Each submitted research group had to complete its own self-assessment, using a similar but less comprehensive template (see Appendix C). The institutions could also submit examples of publications, CVs of selected researchers and impact cases, both at the research area level and for the research groups submitted. It is important to note that the evaluation criteria were not disclosed to the institutions and research groups when they drafted their self-assessments. Thus, it might have been unclear what to put special emphasis on. Naturally, this circumstance was the same for all participating institutions. The dimensions in the mandate were known, however. Altogether, 16 institutions participated in UTDEVAL. They covered 36 research areas and submitted 46 research groups. All but two of the 16 institutions submitted between one and ten research groups.

Early in the evaluation process, the analytical structure of the information from the 46 research groups was discussed. In a first step, research groups with a similar research focus were grouped into clusters in order to establish a systemic overview. This clustering of the groups was done by the RCN and the chair of the committee. About ten clusters – themes – emerged. In a second step, these themes were matched with the specialisation of the committee members with scientific expertise in the field (six of the eight committee members). This resulted in the allocation of themes to each of the committee members with field expertise, one thematic area per committee member. One theme was large enough to be split between two committee members. In a third step, the RCN, in close dialogue with the committee members, created six expert panels, each one chaired by a committee member and including two additional field experts within each thematic area. This was a process that both corresponded to the breadth of the thematic areas and also contributed to deepening the panels' collective competence relative to the various research groups' focus. Altogether, this structuring of the research groups formed a basis for the analyses and conclusions in UTDEVAL.

The panels had the following thematic profile and composition:³

1. Profession, teachers and practice (Kay Livingston (Chair), Maria Assunção Flores, Ian Menter)
2. Curriculum, Assessment, Values and Inclusive/Intercultural Education (Paul Leseman (Chair), Joana Cadima, Maurice Crul)
3. Curriculum, Assessment, Values and Inclusive/Intercultural Education (Jannette Elwood (Chair), Dominic Wyse, Christina Wikström)
4. Subjects and didactics (Pavel Zgaga (Chair), Michel Grangeat, Brian Hudson)
5. Learning, Teaching and Technology (Kristiina Kumpulainen (Chair), Rupert Wegerif, Jackie Marsh)
6. Culture, society and labour market (Louis-André Vallet (Chair), Denis Meuret, Reinhard Pollak)

³ The field 'Curriculum, Assessment, Values and Inclusive/Intercultural Education' was considered large enough to be handled by two panels, panels 2 and 3.

The research groups were evaluated by each panel member independently. Each panel held one physical meeting to calibrate and discuss the assessments. The panels delivered one consolidated evaluation per research group to the committee.

In addition to the material that was submitted to the evaluation by the participating institutions, other material or data were also collected (more details are provided in section 1.3). This included conducting a comprehensive user and impact analysis, consisting of a web survey, interviews and analysis of the submitted impact cases.⁴ A similarly comprehensive personnel and publication analysis was also conducted.⁵ The results of these analyses were presented to the committee during the course of the evaluation.

The committee members met representatives of the evaluated institutions in a series of one to three-hour interviews, during which they were able to check their understanding of the data submitted for evaluation and to discuss any other issues relevant to the evaluation.⁶

The RCN appointed a reference group, which consisted of four persons with extensive experience of the education research sector in Norway: Hans Petter Ulleberg, Eva Maagerø, Ola Erstad and Elaine Munthe. The reference group provided critical comments on the evaluation design and on report drafts.

The consultancy company Technopolis Group was contracted to set up a secretariat to assist the evaluation committee. Göran Melin (Technopolis Sweden) led the secretariat and served as secretary to the committee.

The committee worked between September 2016 and December 2017. The committee's chair and the secretariat continued to serve the RCN in UTDEVAL until March 2018.

1.3.1 Limitations

The evaluation had some limitations. It has already been mentioned that participation in the evaluation was voluntary, with the result that not all institutions that carry out education research in Norway and not all education researchers were included. While many large and active institutions were included, ensuring relatively good national representation and coverage, the outcome of the evaluation is limited to the institutions that participated.

The voluntary design of the evaluation could also have had influenced the material that the institutions submitted. For instance, it was not a requirement that the institutions submit documentation about research groups and impact cases. Some institutions did not do this, or submitted only very few. It was not evident whether these institutions did not have any research groups, or had very few groups and very limited societal impact, or whether they just did not submit such groups for other reasons. Consequently, the submitted material may not cover all education research at the institutions and it may not provide a complete picture of the institutions' education research. The committee could only evaluate what was submitted.

Some material, for example publications, was written in Norwegian. As the evaluation committee and the expert panels mostly consisted of experts from other countries, the panel members could not read the actual content of publications in Norwegian, although such publications still said something about the volume of publications and which publication channels were used. They were thus considered in the evaluation, although usually not read. Other documents in Norwegian, for

⁴ The user and impact analysis was conducted by Technopolis Group, Sweden.

⁵ The personnel and publication analysis was conducted by Damvad Analytics, Denmark.

⁶ One institution, Sogn og Fjordane University College, was interviewed via a Skype call.

example reports on education research, were read by the Norwegian committee members or the Swedish committee chair or secretary.

There are some specific methodological limitations regarding the user and impact analysis. There were difficulties, for instance, relating to the recruitment of user contacts, who were to receive the survey. Not all institutions were able, or willing, to provide a sufficient number of user contacts. There was a considerable imbalance between institutions, between user categories across institutions, and between Norwegian regions, with respect to the number of user contacts they provided for the evaluation. The internal response rate also varied considerably between different sets of questions in the survey. As a result, both the team behind the user and impact analysis and the evaluation committee placed more emphasis on impact cases and interviews than on survey results when evaluating societal impact. In turn, this meant that the quantitative information on the impact on society was weaker than intended, and that the analysis relies to a large extent on self-reported descriptive and qualitative information.

The evaluation committee was also aware of the limitations of the user survey as regards different ways of disseminating and using research, for example in major national initiatives or strategies for professional competence development, where relevant research is important in relation to improving teaching and learning practices. Initiatives and strategies in these categories were not sufficiently captured by the user survey.

The authors behind the personnel and publication analysis made some methodological decisions that proved to be problematic. One such detail was the inclusion of publication levels 0, 1 and 2 from the Norwegian publication indicator, where only levels 1 and 2 are categorised as scientific publications. The committee used the publication data with considerable caution and, in those cases when data were available to the committee in Tableau format, only levels 1 and 2 were included in the analysis. This was done, for example, when looking at publication language.

Lastly, the committee recognised that some of the institutions that participated in UTDEVAL were undergoing fundamental organisational restructuring as a result of mergers with one or several other institutions. This (probably) had an impact on the information that they could present in their self-assessment reports. Moreover, there are examples of institutions that have merged with each other during the course of the evaluation. As a consequence, the committee's assessments and feedback to each of them may seem outdated or only partly relevant. The committee saw no way of overcoming this circumstance; it had to evaluate what was submitted to the evaluation. The respective institutional feedback reports are addressed to the institutions that participated in UTDEVAL. The fact that several institutions were undergoing this type of transition during the evaluation put added constraints on the committee's work.

1.4 Material used

The data available to the committee were

- Self-assessment reports provided by the institutions participating in UTDEVAL. There was one report for each research area and one for each submitted research group. The templates for them are reproduced in Appendix B and Appendix C. A self-assessment report for an area comprised, firstly, a report at the institutional level (the university, university college or institute), and, secondly, information about the research area. The institutional-level information is repeated across the multiple area self-assessments. So, for example, the University of Oslo undertakes education research at the Faculty of Educational Sciences. This faculty contains four units that are included in UTDEVAL (three departments and one centre), each of them forming a

research area in the context of the evaluation, thus four research areas. One of them is the Department of Teacher Education and School Research. Its self-assessment comprised an initial section about the Faculty of Educational Sciences at the University of Oslo as a whole and a second part about the Department of Teacher Education and School Research. There are also four research groups in this department that have been submitted to UTDEVAL. Each one has written a self-assessment report. The self-assessments, both at research area level and at research group level, contain societal impact cases. They are free-text accounts from the researchers of societal impacts they believe research in their area has had over a period of up to fifteen years, or of the impact of the research in the research group.

- A user and impact analysis from Technopolis Group
- A personnel and publication analysis from Damvad Analytics, consisting of a written report and detailed quantitative data in Tableau format
- Reports about education research in Norway from NIFU⁷
- Examples of scholarly output from areas and groups submitted by the organisations performing the research
- Information from interviews with the participating institutions
- Background data on the R&D-system in Norway and the education sector

1.5 Criteria used during the evaluation

The committee based its work on a consistent set of information, against which it made its evaluation and reported its findings. Sixteen institutions with 36 research areas participated in the evaluation. The research areas were defined by the institutions themselves. Information provided at the *institutional level* related to

- Organisation and strategy
- Organisational changes, if relevant
- Resources and infrastructure
- Gender, mobility and career paths

For each of the 36 *research areas*, information was provided about

- Staffing strategy and staff development
- Scientific quality
- Interplay between research and teaching, if relevant
- Societal relevance
- Impact case studies

The institutions submitted 46 research groups. For each *research group*, the information provided related to

- Organisation, leadership, strategy and resources
- Research production and quality
- Recruitment and training
- Networking
- Impact on teaching

⁷ Gunnes H, Rørstad K: *Utdanningsforskning i Norge 2013*, NIFU, Rapport 8/2015; Gunnes H, Hovdhaugen E, Olsen B: *Utdanningsforskning i Norge 2015*, NIFU, Rapport 2017:4

- Impact on society

Impact was judged in terms of the reach and significance of the impact reported.

As mentioned above, for each research group, the expert panels wrote full-text evaluations, which were reported separately for each expert panel. The evaluation also involved awarding each research group a score using a series of 5-point Likert scales. They were used internally in order to gain an overview of the research groups' activities.

Similarly, for each institution, the evaluation committee wrote full-text evaluations and awarded scores using a series of 5-point Likert scales. They were also used internally in order to gain an overview of the research at the participating institutions.

The evaluation of research groups thus focused on the six dimensions that were mentioned in the bullet points above, and these dimensions were defined on the basis of specific assessment questions. The evaluation was carried out using a quality scale or an environment scale, depending on which dimension was being assessed. The impact on teaching and impact on society were assessed using a 3-point scale (A, B and C, indicating 'very good', 'good' or 'weak'). The dimensions, assessment questions and scales were as follows:

Dimension	Assessment questions	Scale
Organisation, leadership, strategy and resources	– How well is the group led? – Does it have a good strategy and sensible goals (albeit perhaps demanding ones)? – Does it make good use of external research funding? – Does the institution provide adequate resources and infrastructure? – Does the group make good use of these?	Environment scale
Research production and quality	– How good is the quality of the research overall, in relation to the quality norms of the discipline? – Is the productivity good, given the norms of the discipline? – Has the group contributed to advancing the state of the art in its discipline(s)? – Does it make good use of interdisciplinary approaches, where these are relevant?	Quality scale
Recruitment and training	– Are the group's hiring and career development practices consistent with best practice? – Are PhD candidates and post-docs adequately trained and mentored? – Is there sufficient national and international mobility of researchers?	Environment scale
Networking	– Does the group make good use of collaboration, nationally and internationally, to advance its strategy and produce high-quality, relevant research?	Environment scale
Impact on teaching	– To what extent is the research of the group relevant for the study programmes at the host institution?	A, B or C (Very good, good or weak)
Impact on society (optional)	– To what extent does the research have impact beyond academia?	A, B or C (Very good, good or weak)
Overall	– What is your overall judgement of this group? – Is it a 'star' group, which should be identified as such in the committee's national assessment of the area?	Five-point quality scale not calculated based on the earlier scores

The quality scale and the environment scale were based on the following quality criteria:

Quality Scale	Criteria	Environment Scale	Criteria
5 Excellent	Work at the international research front: undertaking original research of international interest, capable of being published in internationally leading journals. High productivity	5 Excellent	Practices consistent with groups internationally, which would be expected to score 5 on the Quality Scale
4 Very good	Research with a high degree of originality but that nonetheless falls short of the highest standards of excellence. A publication profile with a high degree of visibility in the field, much of it capable of being published in internationally leading journals. High productivity and very relevant to international research within its field	4 Very good	Practices consistent with groups internationally, which would be expected to score 4 on the Quality Scale
3 Good	Research of a good international standard, visible both internationally and nationally. Research of relevance both to national and international research development.	3 Good	Practices consistent with groups internationally, which would be expected to score 3 on the Quality Scale
2 Fair	Research that does not quite attain a good international standard and that is not very visible internationally. Limited contribution.	2 Fair	Practices consistent with groups internationally, which would be expected to score 2 on the Quality Scale
1 Weak	Research of insufficient quality and with a weak publication profile nationally and internationally. No original research and little research of relevance to national problems.	1 Weak	Practices consistent with groups internationally, which would be expected to score 1 on the Quality Scale

The evaluation of research areas was carried out without using specific dimensions or scales. Instead, the evaluation of research areas was done in a qualitative way. Each committee member was assigned a selection of institutions and carried out a qualitative assessment of the research at these institutions. The assessments included an overall assessment of the education research at the institution, as presented in the self-assessments of research areas submitted to UTDEVAL. If an institution had more than one research area, and thus more than one area self-assessment, a distinction could be drawn between them. Particular attention was paid to scientific quality and staff strategy and development. Beyond these assessment categories, the format of this assessment was free.

All assessments of research groups and research areas were calibrated among the committee members.

1.6 The evaluated institutions

The evaluation covered education research at 16 institutions with 36 areas carrying out research (Table 1). The reader needs to familiarise him- or herself with the acronyms of the respective institutions, since they are used throughout the report. As already explained, some of the participating institutions were undergoing profound organisational restructuring, including mergers with other institutions. As a consequence, their name may have changed during the course of the evaluation.

It is important to note that, when institutions, departments or other types of units, also individuals, are referred to in the following, it is those institutions, departments and individuals that are included in UTDEVAL that are meant. If the intention is to refer to the whole institution at some point, for instance not just the four units at the University of Oslo that participated and are included in UTDEVAL, but the whole university – then this will be explicitly pointed out. At all other times, it is those included in UTDEVAL that are referred to.

A total of 1,556 researchers were included in UTDEVAL. Many of them participate in one of the submitted research groups, but some may not participate in any research group. Individual researchers were not evaluated, but the research environment as a whole. As explained, there are institutions that carry out education research that chose not to participate in UTDEVAL. In comparison, Gunnes et al. have registered just over 2,900 individuals in Norway who are involved in education research.⁸

Table 1 Research-performing organisations participating in UTDEVAL.

Institution (English/Norwegian name)	Abbreviation used	Research area	No of researchers listed for UTDEVAL	No of research groups
Bergen University College; Høgskolen i Bergen	HiB	- Dept. of Education	258	6
Hedmark University of Applied Science; Høgskolen i Hedmark	HiH	- Faculty of Public Health - Faculty of Education and Natural Sciences: Pedagogy - Faculty of Education and Natural Sciences: Subject Didactics	84	3
Lillehammer University College; Høgskolen i Lillehammer	HiL	- Faculty of Education and Social Work	29	1
NLA University College; NLA Høgskolen	NLA	- Education research	57	1
Nordic Institute for Studies of Innovation, Research and Education; Nordisk institutt for studier av innovasjon, forskning og utdanning	NIFU	- Education research	47	2
Norwegian University of Science and Technology; Norges teknisk-naturvitenskapelige universitet	NTNU	- Faculty of Teacher and Interpreter Education (FLT) - Dept. of Education and Lifelong Learning (IPL) - Programme for Teacher Education (PLU)	162	4
Oslo and Akershus University College; Høgskolen i Oslo og Akershus	HiOA	- Centre for the Study of Professions (SPS) - Dept. of Early Childhood Education - Dept. of International Studies and Interpreting - Dept. of Primary and Secondary Teacher Education - Dept. of Vocational Teacher Education	218	3
Østfold University College; Høgskolen i Østfold	HiØ	- Education research	18	0

⁸ Gunnes H, Hovdhaugen E, Olsen B: *Utdanningsforskning i Norge 2015*, NIFU, Rapport 2017:4

Queen Maud University College; Dronning Mauds Minne Høgskole for barnehagelærerutdanning	DMMH	- Early childhood education	98	0
Sogn & Fjordane University College; Høgskolen i Sogn og Fjordane	HiSF	- Dept. of Teacher Education and Sport	36	1
UiT The Arctic University of Norway; UiT Norges arktiske universitet	UiT	- Faculty of Humanities, Social Sciences and Education (HSL) - Result	140	4
University College of Southeast Norway; Høgskolen i Sørøst-Norge	HSN	- Dept. of Art and Design Education (Art & Design) - Dept. of Educational Sciences (ESEC) - Dept. of Human Rights, Religion and Social Sciences (MMM) - Dept. of Language Studies, Pedagogical texts (PedTexts) - Dept. of Educational Sciences, Professional oriented pedagogy (ProfPed)	49 ⁹	3
University of Agder; Universitetet i Agder	UiA	- Dept. of Education - Dept. of Mathematical Science	52	3
University of Bergen; Universitetet i Bergen	UiB	- Dept. of Education	29	1
University of Oslo; Universitetet i Oslo	UiO	- Dept. of Teacher Education and School Research (ILS) - Dept. of Education (IPED) - Dept. of Special Needs Education (ISP) - Centre for Educational Measurement (CEMO)	210	10
University of Stavanger; Universitetet i Stavanger	UiS	- Dept. of Education and Sports Science - Dept. of Early Childhood Education - National Centre for Reading Education and Research - Norwegian Centre for Learning Environment and Behavioural Research in Education	69	4
Total			1556	46

A special note needs to be included regarding NIFU. NIFU is the only institute in the evaluation, while all the other participating institutions are either universities or university colleges. One consequence of this is that NIFU does not conduct any teaching. However, some staff are affiliated part-time to other institutions, where they may carry out teaching or supervisory tasks. Moreover, NIFU has for many decades been responsible for keeping and maintaining the national R&D statistics in Norway,

⁹ HSN submitted 19 additional researchers after the deadline. These individuals were not included in the evaluation and are thus not included among the 49 researchers at HSN. However, seven of them were members of the research groups that HSN submitted to UTDEVAL. Consequently, these individuals were included in the evaluation of research groups.

including statistics for education research. The two research groups submitted by NIFU to UTDEVAL conduct some of their research on the educational system in Norway and provide Norwegian authorities and the education community with factual reports and commissioned studies or evaluations of education research and matters related thereto. Studies conducted by NIFU are part of the background material for UTDEVAL.

The evaluation committee was aware of the special situation regarding NIFU. The three-member expert panel that assessed the two NIFU research groups examined their profile and research activities in a totally independent way, that is, without taking into consideration the specific situation of NIFU in the Norwegian context. The committee decided not to ask NIFU for any specific data regarding other institutions included in UTDEVAL. The committee found it reasonable to use the biannual reports that NIFU produces about education research in Norway as background material for the purpose of this report. Since the NIFU reports are written in Norwegian, the committee was given two oral presentations of the main findings in the reports, one on the report on research conducted in 2013 and one on the report on research conducted in 2015. Only the two Norwegian committee members, the committee's chair and its secretary were able to read in full the reports written in Norwegian.

2 Education research in Norway

Key messages:

- Several institutions that participated in UTDEVAL performed well with respect to their quality and research capacity. When the different parameters included in the evaluation are considered together, NIFU and the University of Oslo were awarded particularly strong scores and reviews. Some other institutions received relatively strong scores and reviews, including the University of Stavanger, Oslo and Akershus University College of Applied Sciences and the University College of Southeast Norway.
- There are sufficient infrastructure resources in place for education research, and many institutions invite other institutions to use their infrastructure and databases. Continued updating of and future investments in infrastructure are still important.
- There is evidence of societal engagement within research agendas. However, this is often evidence of dissemination activities rather than of impact. There is willingness among the researchers to interact with relevant users, and there is an interest in research on the users' part at both the local and regional level, as well as at the national level.
- There is evidence that education research has an impact on the policy and practice of county authorities, municipalities (*fylkeskommuner, kommuner*) and kindergartens/schools. There is some evidence that research also has an impact at the national level, and sometimes beyond that, in other countries.
- There is some evidence of the contribution that Norwegian education research makes on the international research front, but the balance is not optimal between publication in local publication channels with limited distribution and quality control, and high-ranking international, peer-reviewed journals. More Norwegian education research needs to be published in peer-reviewed journals with international distribution, and in English.
- There is evidence of strong collaborative links between institutions throughout Norway. Clusters are often formed around the largest institutions, which results in strong links at the regional level. Collaboration at the national level could be developed and enhanced.
- The evidence relating to international networks shows a wide range of activity, although this could be further enhanced. Researchers need to take more intensive part in international research collaborations from a long-term perspective. It is often a matter of moving from individual research collaboration to institutional collaboration, at research group and research area level. Institutional strategies and leadership need to underpin this ambition.
- Recruitment is often local and national. In general, research groups in Norwegian education research institutions need to pay more attention to their long-term recruitment of PhD candidates as well as early career researchers, including international recruitment, and they also need to develop more attractive, sustainable and optimal career opportunities for existing staff.
- Almost all the institutions need to reconsider their internal support for research groups of lower standard. For such research groups, there is much room for improvement with respect to research production and quality, leadership, strategy, recruitment and networking.

2.1 Quality and research capacity

This section reports on Norway's contribution to the international research front, by looking at publication activity and citation impact, as well as the performance of research groups.

2.1.1 Publishing for an international community

To make a contribution to the international research front, research outputs must be published in a language that researchers from countries beyond Norway can read. Within the Nordic region, there are of course many researchers who understand written Norwegian, so publications in Norwegian may have some impact outside Norway, but impact beyond neighbouring Scandinavian countries is likely to be limited.

Publications in English, even with modest or less than top citation scores, are likely to contribute more to the international research front than publications in Norwegian, even if the latter have high citation scores. Following this line of argument, it is more important to publish in English, and in publication channels that reach an international audience, than to produce highly cited publications written in Norwegian that, essentially, can only be read by Norwegians and other Scandinavians.

Looking at the publications from 2011–2016 by the 1,556 individuals included in UTDEVAL, on average, 53 percent were written in English, 45 percent in Norwegian and 2 percent in other languages.¹⁰ The variation between institutions is relatively large, however, also within institutions, which of course affects the aggregated performance data at the institutional level. CEMO at UiO and the Department of Mathematics at UiA score highest as regards the share of publications in English, at around 90 per cent. Other selected units at UiO, NTNU, UiS and HiH also have relatively high shares of publications in English, as does NIFU – all above 70 per cent. Four institutions have shares of publications in English of under 40 per cent; only one of them under 30 per cent.

There are several other ways of measuring the visibility and impact of Norwegian education research on the international research front. In one of the background reports specifically authored for UTDEVAL, various quantitative results related to publications and/or research personnel are presented.¹¹ As measures of the prestige of the journals where Norwegian education research is published, a combination of (1) the level in the Norwegian publication indicator, (2) the *SCImago Journal ranking* (SJR) and the *Source Normalised Impact per Paper* (SNIP) scores, was used. Finally (3) a *field normalised citation score* is presented in the report. We refer the reader to the cited source for full information about the methodological details.

As regards (1), the main data source for the analysis of publications in Norway is the Current Research Information System in Norway (CRISTin), which collects publication reports from both higher education institutions and research institutes in Norway. In addition to the bibliometric data, CRISTin collects metadata on researchers/authors affiliated to Norwegian institutions. The metadata include the author's full name, institutional affiliation, gender, age and, in many cases, contact details such as email addresses. The CRISTin database is publicly available and is maintained by the National Centre for Systems and Services for Research and Studies (CERES).¹²

The SJR and the SNIP indicators (2) may require a brief explanation. The SJR indicator measures the average prestige of the journals in which authors affiliated to any given institution publish, and the

¹⁰ Source: Tableau data on publication language, Damvad Analytics, 2017.

¹¹ Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics.

¹² CERES – National Centre for Systems and Services for Research and Studies, www.ceres.no

higher the score, the better. The SNIP indicator shows the average impact a paper has relative to other publications within the field. Again, the higher the score, the better.¹³ Table 2 presents the results for each institution using both the SJR and the SNIP indicators.

Table 2. Source Normalised Citation Score (SNIP) and SCImago Journal Ranking (SJR) score (2015). Scopus-indexed journals published by selected individuals affiliated to the participating institutions.

Institution	Avg. SJR score	Avg. SNIP score
DMMH	0.44	0.73
HiB	0.78	0.87
HiH	0.89	1.01
HiL	0.53	0.65
HiOA	0.57	0.94
HiSF	0.97	0.96
HSN	0.71	0.99
HiØ	0.57	0.66
NIFU	1.04	1.31
NLA	0.58	0.77
NTNU	0.47	0.78
UiA	0.60	0.87
UiB	1.00	1.32
UiO	1.11	1.21
UiS	0.73	0.99
UiT	0.57	0.94
Total	0.83	1.03

Source: Damvad Analytics 2017, based on Elsevier Scopus

The authors summarise the results as follows:

The variation among the participating institutions is substantial as the score for the lowest ranking institutions is two times lower than for the top-ranking institutions. The scores furthermore indicate that the publications produced by institutions like NIFU, the University of Bergen (UiB), and the University of Oslo (UiO) are of high quality.¹⁴

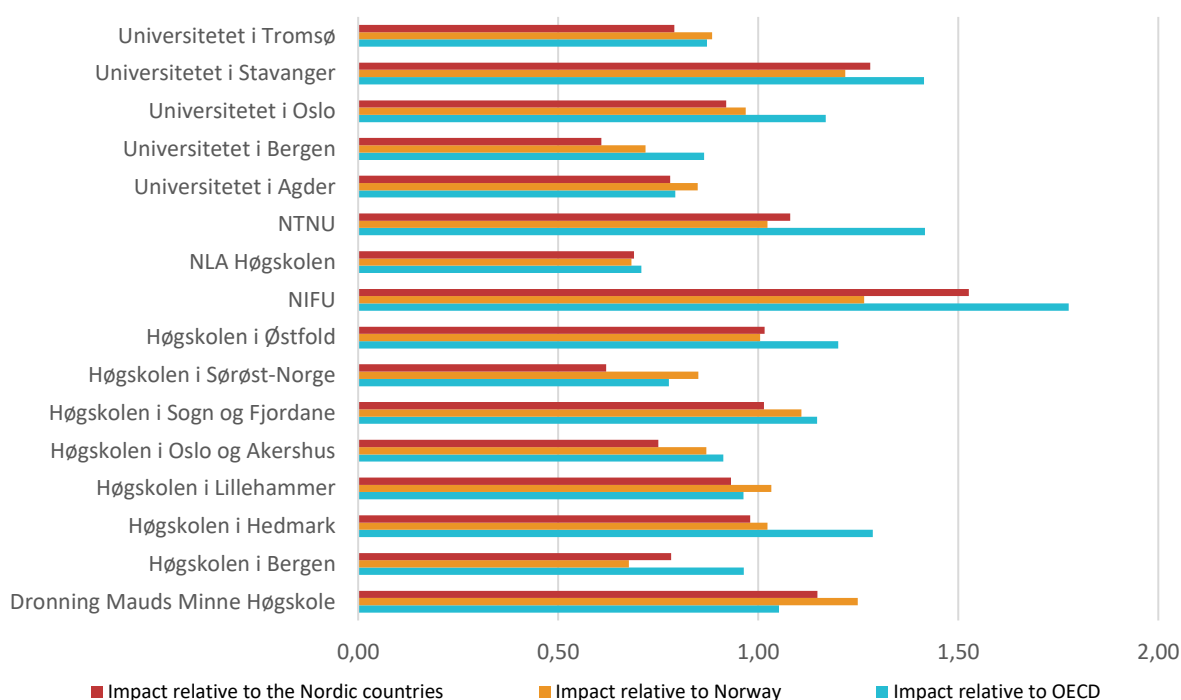
¹³ Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics, Table 3.31, page 41

¹⁴ Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics, page 40.

It is noted that there is significant variation between the institutions as regards their researchers' ability to publish in high-ranking journals. Looking at Scopus-indexed journals for 2015 published by individuals affiliated to the participating institutions, while not all institutions have publications in the 10 per cent highest-ranking journals, 10 out of the 16 participating institutions have in fact published in the these journals. Only one institution has published in the one per cent highest-ranking journals, UiO.¹⁵

The impact indicator (3) *field normalised citation score* takes into account differences in publication patterns for different scientific fields, publication types and publication year. The analysis is based on the scientific impact of publications between 2011 and 2015 in Scopus-indexed journals published by individuals affiliated to the participating institutions. Figure 1 presents the respective institutions' impact relative to Norway, the Nordic countries, and to OECD.

Figure 1. The Field Normalised Citation Score measures the scientific impact benchmarked relative to Norway, the Nordic countries and OECD for publications between 2011 and 2015 in Scopus-indexed journals published by selected individuals affiliated to the participating institutions.



Source: DAMVAD Analytics 2017, based on Elsevier Scopus.

Relative to the whole of the OECD, 8 of the 16 institutions perform better than the average score, and in 3–4 cases, substantially better. Compared with only the Nordic countries, 6 of the 16 institutions perform better than the average score. There is no clear pattern; some of the large universities, such as NTNU, UiS and UiO, are in this high-performing group, but they are on a par

¹⁵ Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics, Figure 3.32, page 41. It should be noted that, for seven of the ten institutions that have published in the top 10% journals, the underlying number of publications (N) is very low, less than ten.

with smaller institutions such as HiSF, DMMH, HiH and HiØ. NIFU stands out as the institution with the highest citation impact.¹⁶

It should be noted that bibliographic indexes like Scopus, which is used in the report by Damvad Analytics, do not provide a complete picture of publication activity. Analyses and tools like those mentioned above do not fully capture the scientific quality of the publications. Bibliometricians are normally well aware of the limitations of these methods, and it is generally advised when using publications as an indicator of scientific quality to supplement publication analyses of a bibliometric nature with qualitative assessments.

Several research groups have published high-quality chapters in anthologies and there are whole monographs of high quality as well. These publications are not registered by Scopus, but they should be fully recognised. They are counted in CRISTin, however.

Overall, evidence of publication activity and the citation analysis show that there are a number of institutions and departments with a strong impact internationally, and high citation scores. Education research from these institutions is clearly visible on the international research arena. The data supporting this consists of publications in English and in journals with a predominantly foreign audience, highly ranked publications, including publications in top-ranked journals, citation scores and international collaborations. This pattern applies regardless of whether we limit the comparison to the Nordic arena only, instead of the OECD. There are clear indications that a number of institutions and their various research environments are of internationally strong and competitive standing. There are also examples of institutions that lag far behind.

2.1.2 The quality of Norwegian research groups in an international context

The evaluation committee, assisted by the expert panels, reviewed the 46 research groups that the participating institutions submitted to UTDEVAL. The reviews were based solely on the information provided in the research groups' self-assessments, including CVs, publications and funding information. The committee's reviews consist of both textual assessments and numerical scores on 5-point Likert scales (with 5 being the highest) for four *dimensions*:

- Organisation, leadership, strategy and resources
- Research production and quality
- Recruitment and training
- Networking

For two other dimensions, Impact on teaching and Impact on society, scores were awarded on 3-point Likert scales from A to C. Impact on teaching and impact on society are dealt with in sections 2.4 and 0.

The committee saw a need to organise the research groups into *thematic areas*. As described in section 1.3, the committee chair, together with the RCN, reviewed the profiles of all participating research groups, an exercise that resulted in about ten different areas. These were then grouped into five broader thematic areas in order to create areas that could be handled practically by the committee and be evaluated by expert panels:

1. Profession, teachers and practice
2. Curriculum, Assessment, Values and Inclusive/Intercultural Education

¹⁶ Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics, pages 42-43.

3. Subjects and didactics
4. Learning, teaching and technology
5. Culture, society and the labour market

In the following, the quality of the research groups will be presented and commented upon per *thematic area*, and per *dimension*. DMMH and HiØ did not submit any research groups and are not included in the review below.

2.1.2.1 Profession, teachers and practice

The research groups evaluated under this theme mainly focused on developing knowledge about learning and professional development in Norway and in international contexts. Most groups carried out research relating to students and teachers in kindergartens, primary schools and secondary schools. The aims of these groups were to undertake research to develop professional knowledge in teacher education (from initial teacher education, through the induction of new teachers to career-long professional learning). Some of the groups had a wider focus that went beyond teacher education. Their research aims extended beyond the teaching profession to developing comparative knowledge about professions, careers and professional education (e.g. comparing the professional development and practices of teachers, doctors and nurses, and investigating transitions to the labour market).

There are eight research groups in this area.

Institution	Research group
HiB	Glocal Teacher
HiH	SePU – The Centre for Studies of Educational Practice
HiOA	PKK – Professional knowledge, qualifying for professions and coping with the tasks of professional life
HiOA	Karriere – Professional careers and professional labour markets
HSN	EMAL – Embodied making and learning
UiO	TEPEC – Teacher Professionalism and Educational Change: Practices, Purposes, Policies
UiS	Teacher professionalism
UiT	FIVE – Research Group in Supervision, Mentoring and Counselling

Organisation, leadership and strategy

With a few exceptions, research groups within this thematic area are commended for clear organisation and a clear strategy. Several groups have succeeded in securing external funding, for instance the groups from HiH and UiT. A clear internal organisation and a clear and well-developed strategy help these groups to achieve their goals. For the groups from HiOA and also HiH, the committee noted that the leadership and management structure could be clearer in order to make the whole organisational structure of the groups more explicit. Two groups need to improve their efforts to secure external funding, as well as making optimal use of available internal resources (Karriere and SePU). One group is judged as fair (score 2) with respect to organisation, leadership and strategy; no group is judged as excellent (score 5).

Research production and quality

Almost all groups are regarded as having a good publication record. At the same time, however, for all groups except one (from UiO), the assessors have remarked that they should strive to do better in terms of publishing in international peer-reviewed scholarly journals of high standing. Such publication activity is not entirely lacking, but it could be improved. For one group (EMAL), there are indications that the publications come from only a few group members, while others seem to publish much less frequently. Two groups are noted for their interdisciplinary orientation (from UiO and UiS), but it is important to show how interdisciplinarity can and does develop knowledge in the education research community. The group from UiO is noted for being very strong in quantitative methods; Karriere is also commended for its quantitative methodological focus. Compared to other thematic areas (more below), groups within this thematic area range from one judged as 'fair' (score 2), four judged as 'good' (score 3) to three as 'very good' (score 4).

Recruitment and training

Two groups have a satisfactory strategy for the recruitment of new staff, but all groups could do (even) better in this respect. Almost all groups need to improve their approach to training, both with respect to the development of staff skills and with respect to the training of PhD students (when this is applicable). In two cases, good routines for group discussions at student seminars and feedback to PhD students were noted. Altogether, the research groups need to improve with respect to recruitment and training. Areas for improvement range from, for instance, making better use of international links to developing a systematic strategy for recruiting and training PhD candidates.

One group (from UiO) stands out as 'very good' as regards recruitment and training, not least with respect to the substantial amount of doctoral training it provides.

Networking

All eight groups in this thematic area have well-developed international links. They have established international as well as national networks. However, the committee wishes to underline that all of them need to develop their networks even further. For some of the groups, this is a matter of developing a coherent group strategy that goes beyond individual group members' own networks and contacts. For other groups, it may entail expanding their international network; typically, there are a few international collaboration partners, but not many. Contacts outside the Nordic countries and the Anglo-Saxon hemisphere are rare. There is an example of a group (from UiO) that needs to develop its network within Norway as well. One group (from HSN) was considered 'fair' with respect to networking.

2.1.2.2 Curriculum, Assessment, Values and Inclusive/Intercultural Education

The focus of the activities in the research groups evaluated under this theme was mainly on aspects of the curriculum, assessment (large-scale), values education, and inclusive and intercultural education in Norway and in international contexts. Most of the research focused on students, teachers, trainee teachers etc. as participants, spanning all phases of education, such as kindergartens, primary schools and secondary schools. The research groups varied in terms of the focus and scale of their research. Some groups worked in small-scale settings, conducting research on issues relating to practice and policy in close alignment with trainee and established teachers from schools within their localities. Other groups worked on large-scale, externally funded international projects that endeavoured to place the Norwegian education system within pan-European policy contexts with respect to both assessment and curriculum debates. This thematic

area was considered large enough to be handled by two expert panels. There were 15 research groups in this area.

Institution	Research group
HIB	EMBISS – Studies of ethnical diversity in pre-school, school and society
HIH	DivE – Diversity in Education
HiOA	TALMUS – Teaching and learning in multicultural societies
HSN	MMM – Human Rights, Citizenship and Diversity
HSN	Oppvekst og utdanning (Growing up and education)
NTNU	SiPP – Studies in Pedagogical Practices
NTNU	Ledelse, undervisning og læring (Management, teaching and learning)
UiA	Special Education
UiO	Inclusion and diversity – from a special education perspective
UiO	CLL – Child Language and Learning
UiO	HumStud: Humanities Studies in Education
UiO	CLEG – Curriculum Studies, Leadership and Educational Governance
UiO	LEA: Large-scale Educational Assessment
UIS	LEDS – Learning environment in daycare and school promoting learning and psycho-social development
UIS	Values education in early childhood settings

Organisation, leadership and strategy

Several research groups were formed relatively recently, during the past two or three years. Naturally, this has an impact on their organisation, leadership and strategy. For some groups, their formation and research orientation may be part of an active and conscious strategy at the institutional level to improve and enhance research activity. Some groups may suffer from being relatively new, as their strategy and organisation may not be fully developed yet.

However, many research groups have a well-established and functioning organisation in place, and have good leadership. They also have a clear strategic vision. Seven research groups within this thematic area were given high scores and positive reviews by the expert panels for their organisation, leadership and strategy. They were commended, for example, for their clear strategy, clear overarching research topics and social mission, and for having set highly ambitious research goals for the short and medium term. These groups have a clear mission that is in line with the profile of the host institution, and their goals are well-reflected in research lines and themes. Typically, these groups also have a clear strategy for publication, including joint authorship, targeting international journals peer-reviewed by international experts.

There were five examples of less well-organised research groups. These groups lack, for example, a clear strategy for the formation of coherent research areas, as well as a concrete and feasible strategy for improving the academic quality and scientific and societal relevance of their research.

Their publications reveal a weakness with respect to publication strategy or in that they continue to publish in Norwegian journal only. There is one case where a group relies heavily on only one senior researcher, who tends to carry the whole group. This is quite a vulnerable situation for a research group, of course, not least with respect to succession.

Research production and quality

In 8 of the 15 research groups, the scientific output was assessed as 'good' or 'very good', but not 'excellent'. This assessment was arrived at because the main orientation tended to be towards the national level in terms of publication output and language, as well as research collaboration, which is mainly with other Norwegian institutions. Where international publications exist, they are typically of good quality, but not outstanding. In some cases, there are large variations between the members of a group with regard to both quality and production. For one research group (Values education in early childhood settings from UiS), which includes several members from abroad as well as members from Norway, there are large variations within the group as regards both quality and production. It is evident that the members from outside of Norway have many publications, often co-authored, while the Norwegian researchers in this group mainly publish their work nationally. There are examples of groups claiming to have a systematic plan for publications without it being clear what the plan is. For some groups in this category, we note that external funding is limited. Some positive signs do exist, for instance that the number of publications in international journals is increasing, or that there are plans to secure new funding.

There are four highly rated groups in this thematic area that have excellent research production. They are characterised by numerous publications (in English) in high-ranking, international scholarly journals and extensive external funding, and they make substantial contributions to the national and international literature in their field. Some members of these research groups are among the very best in their field, with highly rated publications in prestigious journals.

There are also three weaker research groups whose productivity was judged, both quantitatively and qualitatively, to be 'fair' or even 'weak' (score 1 or 2). They are characterised by publications that are national and not peer-reviewed. International publications are few and, where they do exist, they are not in highly ranked journals. These groups have not yet been able to obtain external research funding, or only very little. They are also small and/or fragmented.

Recruitment and training

Like other dimensions of this thematic area, three strong research groups have been successful in the recruitment and training of staff (both national and international) (CLL, CLEG and LEA). They all have a clear and well-established strategy for recruiting and fostering early career researchers, perhaps starting already during master's programmes. There is a strong focus on supporting doctoral candidates and young researchers, and giving them opportunities to take courses etc. at other universities, also internationally. This type and degree of training and mentoring is a sign of strength; PhD scholarships are aligned to research group activities and article-based dissertations, which is a productive and effective way of getting work published. These groups also employ postdoctoral researchers to meet their strategic goals of raising new generations of high-quality researchers. There are good links to national and international organisations, resulting in placements and mobility for researchers. Support measures include internationalisation for PhD candidates, as well as working with schools and other partners outside academia.

In relation to recruitment and training, other groups within the area have room for improvement. Although these groups state that they are on track to improve across this dimension, aspects of their

recruitment and training remain weak. For instance, PhD training is often not of the same high standard as among the leading groups. PhD candidates may have been recruited to a group, but the group may be less focused on clear and enhanced training of their students, beyond taking courses and carrying out research on an individual basis. Furthermore, clear plans for developing the PhD training are lacking. There are also groups that seem to have rather limited experience of PhD training in general, in part because they were recently formed, although this could also be because some of the staff do not have PhDs themselves.

There are six research groups that are assessed as relatively weak as regards recruitment and training. Some of them have no PhD training as yet, while others are in the process of developing PhD programmes. Two of these groups lack a clear idea of how to organise a PhD programme; another group has just recruited a few PhD candidates, but it is not clear about how they will be educated, trained and supervised. Typically, there are no signs of an international orientation or of a clear policy to raise future generations of education researchers. The lack of ideas and a policy for recruitment gives the impression that this category of research groups is in decline, since they will not renew themselves.

Networking

With respect to networking, there is a wider spread among the research groups in this thematic area compared to the previous one. Here, a number of groups have very well-developed networks (HumStud, CLEG, LEA). One of them is well-embedded in national and international networks of researchers. For example, the group frequently invites international scholars as guest researchers, and group members have strong international links and are actively engaged with appropriate and leading networks in their field. Another group is involved in extensive international networks as well as in interaction with the ministry, county governor and municipalities, and other authorities that decide national priorities. It also interacts with teachers, principals and unions.

The majority of the groups have several links with national and selected international partners. There may be an at least occasional presence of visiting researchers, and PhD candidates may spend periods at partner institutions abroad. However, almost all groups in this category still need to further develop their networks, especially outside Norway. There seems to be a certain hesitation about exposing one's research to a wider international scientific audience and working outside one's comfort zone. The majority of groups have substantial potential in terms of networking.

Three groups (Management, teaching and learning at NTNU, Growing up and education at HSN, and EMBISS at HiB) need to improve in relation to this dimension. Networking is mainly local, for instance with kindergartens or schools involved in research projects. While there may be some national collaboration as well, these groups essentially have no international collaboration.

2.1.2.3 Subjects and didactics

The common denominator of this area is research in the field of (mainly subject) didactics. This includes (a) research on teaching and learning, for instance reading, writing and language development, mathematics, science education, religion, and physical education; and (b) research on general didactics and on transversal issues in teaching and learning, such as didactics and instruction across subjects and competences.

There are nine research groups in this area.

Institution	Research group
HiB	Barns matematikk – The mathematics of young children
HiH	Teaching, learning and physical education
HiSF	Lesing, skiving språkutvikling
NTNU	Inquiry-based learning in mathematics and science education
NTNU	Developing RE through community of practice
UiA	Mathematics education
UiA	Didactic
UiO	SISCO – Studies of Instruction across Subjects and Competences
UiT	REDINOR (Education in natural sciences and mathematics)

Organisation, leadership and strategy

Within this thematic area, two groups stand out as excellent compared to the other groups, and this applies to all the assessed dimensions (Mathematics education from UiA, and SISCO from UiO). Both groups have a very effective leadership with a strong academic leader. There is a clear strategy and sensible and challenging goals. Good use is made of external research funding and much of the research is structured around large, externally funded projects. There is also good use of resources. For example, the norm is that conference presentations are supported if research outcomes are being reported. Both groups have a high critical mass and a healthy age profile.

Five groups belong to a mid-level category (the groups from HiB, HiH, NTNU and Didactic from UiA). Typically, their strategies are not clearly visible or not well developed, but they do exist. Some of these groups are relatively new, two or three years old. Leadership is not as strong as for the excellent groups, but good project management was noted in some cases. The groups have good ambitions, such as participation in EU-funded projects or development of a research line, but they still have some way to go before they are successful in these endeavours. External funding is sparse, or at least there is little evidence that external funding has been granted. Some of the groups have some international cooperation, while others seem weak in this respect. This category of research groups has some promising potential and, if their ambitions remain high and if their leaders can set clear goals and steer their group towards them, some of these groups could develop into prominent research environments.

Two research groups are regarded as 'fair' or 'weak' (from UiT and HiSF). These groups are small. One is led by an adjunct professor from another institution, and the group only meets three to four times per semester. The group presents an overall goal, which is to contribute to the field of reading, writing and language development, but it does not present a strategy for how it will achieve this, other than referring to dissemination in the academic world and also through popular channels. The group does not have any external funding, although one proposal had been submitted to the Norwegian Research Council at the time the self-evaluation was written. The other group has been involved in a number of externally funded projects, but the research dimension of these projects is unclear and they do not seem to have been translated into research outputs at an international level.

Research production and quality

The two research groups described above as excellent in terms of their organisation, leadership and strategy score highly when it comes to research production as well as quality. One of them has a systematic publication strategy involving local seminar groups, conferences at the national, regional and international levels, and output published in research anthologies and scientific journals. This group has a strong profile in research publications of the highest academic standing, regionally and internationally. The other group has been productive in terms of output, with quite a strong profile in international, peer-reviewed journals and edited books. However, there is room for further development of the profile of the group. This group has a significant potential to advance the state of the art in terms of certain research that it carries out. The interdisciplinary nature of this group has enabled it to develop critical mass and also to realise synergies across different school disciplines.

Two groups belong to a mid-level category (Didactic and The mathematics of young children) and have some room for improvement. The quality of their research production is not yet at a satisfactory level. The comments from the expert panel indicated that the publication output is uneven among the group members. One or a few group members account for the vast majority of the group's total publications. In some cases, it is noted that publications are of strong standing, also internationally. More often, however, it is noted that the publication profile is nationally dominated and with only a few international publications. As external funding is often limited, the groups mainly undertake small-scale research projects. This limitation reduces the opportunities to cooperate with institutional stakeholders as well as international research partners. Productivity often ranges from low to very high. Several of the groups are endeavouring to overcome their difficulties; for instance, they transform conference presentations into peer-reviewed papers and develop co-authorships with external partners.

The five weaker groups struggle with their publication records. They have some international publications but not many, and not in highly ranked journals or in other reputed channels. Quite a few group members seem to be almost entirely inactive as authors of scientific publications. One group actually noted in its self-assessment that it has not really made any substantial contribution to the international research front in its field.

Recruitment and training

For this dimension, the research groups fall into two categories. Again, the same two research groups as in the dimensions above outperform the other research groups. The first research group has been exceptionally successful in its training and recruitment. PhD and postdoc positions are advertised internationally, with individuals from Europe, North American and Africa being appointed. Two out of three postdocs and one third of the PhDs have been recruited internationally. Opportunities are provided for international exchange and several researchers take up this offer. The group also acts as host to incoming visiting researchers and international mobility is high. The other research group's hiring and career development practices are similarly consistent with best practice. PhD and postdoc positions are advertised internationally and evaluated by internal and external experts. PhDs have two supervisors, including at least one professor, and postdocs are supported by a scholar of international standing in the field, who may be external.

The picture is mixed for the rest of the research groups. For example, one group provided no information about recruitment and very little about training, other than the presentation of papers and projects for discussion and review. However, the international mobility of PhD students and the postdocs is very good. Another group is so new that it has not been possible to develop advanced training and recruitment procedures, but it still has high international mobility and good links with a

well-known foreign university. One group participates in European projects and international conferences and thus demonstrates a desire to be internationally connected. Nevertheless, no PhD students had been recruited to this group. For the weaker of these groups, information about PhD mentoring and training, as well as international mobility, is not very precise, or is even absent, which may indicate that there is little evidence of it. It should be taken into account that not all research groups are engaged in doctoral training.

Networking

In this dimension, the same two of the nine groups again clearly outperform the others when it comes to networking.

One of these groups is very internationally oriented, with a high level of international visibility. Its links with two of the most renowned American universities are especially significant. The large, externally funded projects that the group is involved in all include extensive external international collaboration. Both international and national networking are well developed. The other group has strong national, regional and international links and makes very good use of them. A significant number of leading national and international researchers are associated with the group, which also collaborates successfully with national and international partners on proposals for external funding. In addition, the group has close links with a very strong British research group in this field.

The other groups are judged to be 'fair' or 'good' (score 2 or 3). As has been noted for other thematic areas, networking is predominantly national and the international links that do exist are few and do not seem to change much over time. There is thus much room for improvement and closer international links. Some of the weaker groups are recently established, which may be the reason why they not yet built extensive international links. Others that have been established for a longer time would be expected to do better; participation in workshops and presentations at conferences is not sufficient to qualify as networking. Such a view of networking is not unique, however.

2.1.2.4 Learning, teaching and technology

Key research areas for research groups working in the thematic area of Learning, Teaching and Technology focus on literacy and learning; comprehension of diverse texts, print, and the culture of written text; space and time in learning and education; rural education and its spatial and historical dimensions; children's literature on nature, outdoor education, and environmental awareness; media education; learning and digital environments, identity, culture and learning, and design-based research.

This area has seven research groups.

Institution	Research group
HIB	NaChilLit – Nature in Children's Literature: Landscapes and Beings – Fostering Ecocitizens
HiL	Media, technology and lifelong learning
UiO	TextDIM: Text Comprehension – Development, Instruction and Multiple Texts
UiO	Mediate
UiS	Literacy and Learning
UiT	Result – Ressurssenter for undervisning, læring og teknologi
UiT	STED – Space and Time in Education

Organisation, leadership and strategy

One of the research groups in this thematic area stands out as a large, well-funded and well-managed group with regular meetings and good output (Mediate from UiO). It operates at the same level as other, similar leading groups worldwide. The group is highly productive and has attracted national and international research funding.

Three groups' organisation, leadership and strategies are reasonably good, but still have room for improvement. For one group (from UiS), it was noted that it has a good strategy in terms of international networking, but there appears to be a lack of networking within the group itself, as the researchers seem to work within project teams, rather than carrying out activities as a group (e.g. regular meetings, seminar series etc.). Another group (from HiL) has maintained its activity over a long period of time despite not having attracted substantial amounts of external funding. This is largely because the group has had a strong leadership. Yet another group (from UiO) is commended for being a strong research group that has grown for over a decade since it was established. However, this group is largely organised around projects and lacks a centralised structure that could facilitate regular seminars, meetings etc. and thereby provide a strong research culture for PhD candidates and postdocs. The group has been successful in terms of research funding, although, given the large number of professors involved in it, a stronger track record might have been expected in this regard.

Two of the seven research groups are judged as 'fair' or 'weak', both with substantial room for improvement. One is recently formed, but research infrastructure does not appear to be in place to support its work, although some of the project work is externally funded. This group suffers from a lack of leadership. The other group is also at an early stage of its development. The strategy for the group lacks sufficient ambition (e.g. in terms of recruiting PhD candidates). In addition, the emphasis in the strategy focuses on publications and knowledge exchange, with no mention of how research funding will be obtained. The group has not been successful in obtaining external funding.

Research production and quality

Like the pattern for some of the other thematic areas reviewed above, when the expert panel assessed the research groups' performance in relation to the dimension *Research production and quality*, it was clear that many of the groups have some way to go before they can achieve the most positive assessments.

One group stands out (the same group as stood out above, Mediate). Almost all its staff have published an appropriate number of international peer-reviewed articles, a small number of which are of very high quality. It is interdisciplinary and mostly publishes jointly authored articles. Key members lead EU research in the field. Three groups also do well, but have a potential for improvement. For instance, the research publication record may include some research published in Norwegian, while other outputs are published in English, in well-regarded journals of high ranking. There may also be a difference between group members, where the research produced by a core group of members is of good quality, meeting international standards, while other members have not achieved the same good score. All in all, however, four of the seven groups in this thematic area mostly produce high quality research and have impressive publication records.

The remaining three groups have some way to go (they are from UiT and HiB). Their research appears to largely have a local focus and only a few publications in the field are visible

internationally. The research of some group members is internationally recognised, but many outputs are published in Norwegian only. These groups may have some collaborations, but, typically, they are at an early stage of development. It should be noted that the group from UiT had secured substantial external funding.

Recruitment and training

There is a clear distinction between the groups as regards their recruitment and training. Three groups perform very well (from UiS and UiO), the other four significantly less so.

The high-performing groups' approach to international recruitment and support for PhD students meet the highest standards. Postdocs and PhD candidates have opportunities to undertake overseas placements. The recruitment of PhD candidates is thorough, and it includes an international dimension, although it is largely focused on recruiting master's students from the host institution. PhD candidates may be linked to an international collaborator as well.

The other groups could, for instance, be in a process of recruiting new PhD students, but it is not clear how they will be trained and supported. Some mention plans to contribute more extensively to PhD training in future. There are no attempts to recruit international PhD students. Support for postdocs is absent, and there is little international mobility among researchers. In general, very little information about recruitment and training was mentioned in these groups' self-assessments.

Networking

Two of the seven groups stand out as 'excellent' (both from UiO). One of them has made strategic use of networking to support high-quality research and publications, including excellent use of international visiting scholars. It has good international leadership roles and links, also within Norway, especially with teachers. The other group has well-established external networks that facilitate its research. It has strong links with international scholars in the field. These links have led to joint presentations, publications and engagement in research. The group has good connections with schools in Norway. Like what has been said about many other groups in other thematic areas, most groups in this area have both national and international links and collaboration, but they need to intensify and expand this aspect. Some groups have a few partner groups or environments abroad, but not many. Nor is it certain that these links have been translated into external funding or real collaborative research projects. Consequently, for the majority of these groups, there is room for improvement with respect to networking.

2.1.2.5 Culture, society and labour market

The thematic area entitled *Culture, society and labour market* includes research groups whose activities are situated at the intersection between education as such and society at large. All educational levels are included, i.e. pre-elementary education, primary education, secondary education, higher education and adult education, but a focus on the relationship with society in general – either Norwegian society or defined in a broader sense as modern or globalised society – is the common denominator of the research groups included in this thematic area. The content of kindergarten education and kindergarten teacher education as an aspect of cultural formation is one example of such a focus; other examples include research and studies of primary, secondary or higher education that are conducted within a broad educational policy framework: organisational aspects and governance of educational systems and institutions; the relationship between education and occupational expert cultures; the importance of education for the effective inclusion of individuals in society and the fight against their marginalisation; changing conceptions of knowledge

as well as educational policies and practices in today's modern societies; the intersection between education and the fields of arts and culture.

There are seven research groups in this area.

Institution	Research group
HiB	Culture, Criticism, Community
HiB	Kindergarten as an arena for cultural formation
NIFU	Higher education
NIFU	Primary education
NLA	Education, marginalization and value
UiB	KED – Knowledge Education and Democracy
UiO	ExCID: Expert cultures and institutional dynamics: Studies in higher education and work

Organisation, leadership and strategy

With respect to organisation, leadership and strategy, the groups in this thematic area are sufficiently well organised. In many cases, they are led by relatively strong or recognised scientific leaders, and their host institution provides good support. One group applies a rotating leadership system, while another has appointed co-leaders in addition to the main leader. For the best organised groups, strategic goals are described, especially in the direction of increased Nordic and international comparative research, as well as increased cooperation with universities, and there is much support for securing new external research projects on relevant topics. There is room for improvement, for instance as regards scientific goals that are too broadly defined and are not really operationalised in research activities, thus making it less clear what kind of research the group wants to pursue. Three groups (from UiB, UiO and Culture, Criticism, Community from HiB) suffer from weak internal links. For instance, one group, even though it has one leader, is mainly horizontally organised with full autonomy for group members in the development of projects and studies within the framework of the research group profile. As a result, this group reports less than a handful of joint papers. The strategy of the research group has been to prioritise the development of small projects and studies with no or little funding. Establishing thematic priorities might be relevant at the current stage of development for groups that struggle with too much internal heterogeneity.

One group (from HiB) is somewhat weaker than the others. This research group is small and quite new. While current research projects are individual projects fully or partially funded by external sources, long-term goals include the development of research applications and joint international conference presentations and publications. The group has little structure in place to achieve its goals, however, and it has just started thinking about forms of internal organisation and collaboration. The reported plan to meet two to three times per semester seems to indicate very little internal exchange given the size of the group. Little is said about concrete plans for the research group to engage in more collective work.

Research production and quality

Three research groups have a good publication record in international and relatively highly ranked journals, or with highly ranked publishers. However, a more typical remark by the panel is that the research is significant at the national level and also partly published in international journals, but that

the overall impression is that it is not cutting-edge research. The panel repeatedly noted extensive heterogeneity between members of the groups in terms of both the quantity and quality of publications, where a few researchers publish much more than the others. Also in the case of the more productive researchers, a significant number of the publications are only available in the Norwegian language or are published in journals that have a rather modest reputation.

The weaker research group that was referred to in the section above has a relatively modest publication record because the group was only recently established; the group leader has a strong list of publications, but the other two internal members have a far weaker publishing record.

Overall, there is room for improvement for all groups, but more for some than for others.

Recruitment and training

Three of the seven research groups have sound procedures in place for recruitment and training, while the other four do well, but still have a potential for further improvement. No group in this thematic area is considered 'fair' or 'weak' with respect to recruitment and training.

The group with the strongest procedures reports that several members of the research group were awarded their PhD at a foreign institution and that nearly half of the members are PhD candidates (from six countries) or postdoctoral researchers. These positions were filled after being advertised both in Norway and abroad. This group is from UiO. Overall, the training, mentoring and integration of PhD candidates within this research group is quite satisfactory. In particular, the group encourages PhD candidates to spend three to six months abroad, it encourages them to co-publish with senior researchers, it organises regular research seminars for PhD candidates, and it also initiates workshops and pre-conferences for junior researchers with international invitations. Such procedures are clearly a benchmark for other groups.

Another group's recruitment of PhD candidates is mainly grounded in the national, and even local, academic labour market (KED from UiB). The training activities are of an international nature, however, with opportunities for research sojourns abroad at prestigious higher education institutions. In addition, all PhD candidates have two supervisors.

Room for improvement is often related to the fact that senior group members do not hold a PhD degree, and that insufficient strategies are in place or ambitions are too low in relation to the recruitment of PhD candidates and junior researchers. For instance, advertisements may not be published outside the institution, or outside Norway. Supervision is another area where there is room for improvement.

Networking

No group in this area is considered 'weak' or 'fair' with respect to networking. They are all 'good' or 'very good'.

For example, one research group (Culture, Criticism, Community from HiB) has developed formal contacts with a Finnish research group on related subjects, as well as with other, non-academic partners. The group has external national and international members, and group members work together with colleagues in Europe and elsewhere. One area for improvement for this group is related to the fact that little is said about the future development of these contacts and how they will contribute to research and publications.

Several groups have relatively wide international networks, including collaborative partners. These networks include but also extend beyond Europe and the Anglo-Saxon world, for instance to China.

Most groups need to expand their networks, however, and make plans for how their networks could translate into externally funded research projects.

2.1.2.6 Summary: research groups

A few summary points can be mentioned from the review of research groups in the sub-chapter above (2.1.2).

First, the formation of research groups seems to have become the norm in Norwegian institutions. A range of research groups have recently been established and most staff participate in a research group. Some of the institutions made it very clear that they intend to organise their research in research groups (or already do so). A consequence of this is that many groups are still rather new – around one to three years old – and they seem to suffer from having less well-developed internal structures and procedures. This circumstance needs to be taken into account when evaluating their performance. It is not a rule, however. Some new research groups include senior researchers, for instance, and can draw on their experience and well-established networks and expertise.

Organisation, leadership and strategy among the research groups is often relatively developed. Many groups are led by strong and ambitious academic leaders, who serve as role models for younger colleagues and PhD candidates. The thematic area *Profession, teachers and practice* appeared to do especially well with respect to organisation, leadership and strategy, in comparison with, for instance, *Subjects and didactics* and *Learning, teaching and technology*, where only a few groups stand out and the majority have room for improvement. Throughout the national system, however, there are a number of groups that need to reconsider their internal strategy. The committee suggests that recruitment and training, publishing, networking, and other activities by any research group, should be specified in a strategy that is in line with broader strategies at their institutions. It is also important that a research group has set itself clear goals. While there are many positive examples among the research groups participating in UTDEVAL, there is room for improvement as regards professionalisation of leadership and the adoption of internal strategies. Leadership strategies should include clear, realistic goals and plans for how to attain them, a good idea of the resources needed to realise these goals, and a clear recruitment plan that takes account of the context of competitive academic work.

Many research groups score less well as regards recruitment and training, which is closely related to their strategies. Recruitment is more local and national than is expected. For the weaker groups, there are few and/or insufficient recruitment strategies in place. Only the top performers do well in this respect. In general, research groups within Norwegian education research institutions need to pay more attention to their recruitment of PhD candidates and early career researchers, and they also need to provide more attractive career opportunities for existing staff. There are examples of groups that suffer from an imbalanced staff composition with respect to level of experience; a healthy composition includes early career researchers, as well as a middle level and senior level researchers. Available positions should be advertised more widely and preferably through international channels. Quite a few groups in all thematic areas rely too much on local recruitment.

There are large differences between the groups with respect to research quality and publications. There are some really strong groups that are internationally recognised and of an overall quality standard that is on a par with world-leading research groups. The thematic areas *Culture, society and labour market*, *Learning, teaching and technology* and *Subjects and didactics* have one to three strong research groups each, while the rest range from fair to good. Those top-performing groups score high on most parameters the committee looked at. Groups in the thematic area *Curriculum*,

Assessment, Values and Inclusive/Intercultural Education as well as *Profession, teachers and practice* seem to be more even in comparison, and with more room for improvement in general.

It was noted in section 2.1.1 that 10 out of the 16 participating institutions have published in the top 10 per cent journals, but only one institution has published in the one per cent highest ranking journals. The more detailed review of research groups in this section revealed large differences within many groups with respect to publication, as well as between groups. In contrast to the top-performing groups, there are research groups with such poor reviews that they should perhaps be closed down, or merged with another group. They seem to have been formed without any clear idea of what they should do or how they should be organised, and their scholarly performance is judged fair at best, but often weak. In between, there are a number of research groups that range from very good and with a potential to reach the level of excellent, to groups that are struggling to develop as research groups and have a long way to go before reaching good standards. The strong groups publish a substantial share of their research results in English, and in high-ranked international scientific journals. The weaker groups publish much more in Norwegian and in local publication channels that are not externally peer-reviewed. Here, there may be reason to discuss the causality. Do these weaker groups not publish as much in international high-ranked journals because they lack ambition, or because their research is not of sufficient quality? At least in theory, it would be possible to conduct high-quality research, but still choose not to publish in international, high-ranked journals. In an evaluation like UTDEVAL, such a group would probably still be judged as weak in terms of research quality.

One group noted in its self-assessment that it had not made any substantial contribution to the international research front in its field. Hopefully, such a critical, but honest self-image signals that, if good leadership could be exercised with the result that ambitions for recruitment and research production are raised, then there may nevertheless be a future for this group. Strong determination to perform better is the main prerequisite for improvement, after all.

With only a few exceptions, ambitions regarding the dissemination of research results to the academic community could be higher for all groups. Even groups that otherwise perform rather well should aim to reach higher by publishing in higher ranking journals, or through renowned book publishers. There is much research that should preferably be published in the local language due to its orientation, but it is still very difficult to understand why it should be published in journals or local series of limited distribution and quality control. Thus, generally speaking, there are too few international publications coming from Norwegian research groups. Here, ambitions need to be raised in future.

The international networks of Norwegian education research also need to be expanded. The stronger groups have relatively wide networks, and selected groups with a less good record than the top performers also have a few close contacts around the world. More often, however, the networks are limited to a few or a very small handful of partners, mostly in the Nordic countries or in the UK, the US or Australia.¹⁷ In general, connections to European partners besides the UK and perhaps one or two other countries are weak and could be substantially expanded. The thematic areas *Profession, teachers and practice* and *Culture, society and labour market* score better than the other areas with

¹⁷ Hebe Gunnes and her colleagues report that the UK, Sweden, the US, Finland and Denmark – in that order – are the most frequent collaboration countries for education researchers in 2015, a very similar result to the result of the corresponding investigation of education research in Norway for 2013 (Gunnes H, Rørstad K: *Utdanningsforskning i Norge 2013*, NIFU, Rapport 8/2015; Gunnes H, Hovdhaugen E, Olsen B: *Utdanningsforskning i Norge 2015*, NIFU, Rapport 2017:4, pages 55-56).

respect to networking – essentially, all groups in these areas do rather well. In the other areas, there is a large spread between the groups and, in some cases, substantial room for improvement.

In a situation where many institutions provide relatively good support for conference participation and even sabbaticals, it is reasonable to call for more effort and wider networks from the groups with respect to developing contacts and establishing international research collaboration. Education research and knowledge development is not just a local or a national issue, it is global and bilateral. Norway can contribute to the demand for globally shared educational knowledge and Norwegian society can benefit from internationally developed educational knowledge. Norwegian education researchers should be encouraged to interact more closely with fellow researchers abroad. Research group strategies and leadership must set more ambitious international goals.

Lastly, not all research has to be published in English or be presented in top level international journals. Not all research must be undertaken in collaboration with the most prominent partners abroad. Some research has a profile or orientation that means it is most appropriate to present it in the local language, and for a local, regional or national audience. It can still be research of the highest scientific standards. It is reasonable that some Norwegian education research is of this type. However, if as much of it is of this type as the publication pattern and the networks of the research groups seem to indicate, then there is much unexplored potential to start engaging in research fields of wider relevance as well.

2.1.3 Access to data and infrastructure for the storage and sharing of data

The committee came to the conclusion that, as regards access to data and infrastructure for the storage and sharing of data, it is relevant not just to present the committee's assessment of the situation, but also to provide an overview of what infrastructure the institutions have. This section therefore contains such an overview, based on the institutions' self-assessments.

All 16 institutions report that they have very good library facilities, including support services of various kinds. Many institutions also have special knowledge centres or laboratories that interested researchers can use. Such facilities are often shared with other departments or units at the institution. In addition to library facilities, the institutions mentioned various databases or other kinds of infrastructure that they possess or have access to. The review below is presented alphabetically.

DMMH: DMMH has tried to build a longitudinal database of children's wellbeing in ECEC institutions in Norway using an evaluation tool based on its research. The total investment so far is about NOK 50,000. DMMH reports that many international researchers have shown interest in licensing the tool, but DMMH has not had the financial resources to translate it.

HiB: A Teaching Kitchen has facilities for developing experimental diets for research purposes. It is currently used for research on school meals. A physiology test lab is used for national and international multidisciplinary research on physical education, sports and public health.

HiH: HiH established an interactive digital technology centre in 2017. This will enable Virtual Reality, Augmented Reality and Motion Capture-based education and research.

HiL: HiL has not reported any databases or other specific infrastructure.

HiØ: The faculty is in the process of building up a database of transcribed spoken material from children that will be used in future research.

HiOA: HIOA is a member of the University of Oslo's TSD project. TSD provides a platform for researchers to collect, store and analyse sensitive research data. StudData is a database that includes a longitudinal survey following four student cohorts taking approximately 20 professional programmes (e.g. nurses, social workers, teachers and physicians) from the beginning of their studies until they are well established in the labour market (up to six years after they have completed their professional degree).

There is also a data set based on data from Statistics Norway, comprising all citizens in Norway born between 1945 and 2000, plus all citizens who completed higher education before 1955. This data set contains information on educational attainment, wages and career development, as well as background information such as gender and ethnicity. It is frequently used in analyses of recruitment and careers. ProTruSt (Professions: Trust & Status) is another database based on a survey of the Norwegian population, containing information on assessment status and trust in different professions.

HiSF: HiSF has not invested in or upgraded research infrastructures at the institution, such as databases, archives, laboratories and scientific collections, or made any investments in the last 5-10 years. The education research at HiSF is not very dependent on large investments in research infrastructure.

HSN: HSN has not reported any databases or other specific infrastructure.

NIFU: NIFU maintains a register of all higher education institutions and their organisation, research expenditure and income sources, a register of all research personnel and a register of all doctoral degrees ever awarded in Norway, as well as statistics on doctoral degrees in the Nordic and Baltic countries. These databases are valuable resources for many research projects on higher education institutions and higher education personnel. Since 1972, NIFU has also carried out national graduate surveys among master's degree students, to map their transition to the labour market.

NLA: NLA has not reported any databases or other specific infrastructure.

NTNU: As a part of and as a continuation of the project *Developing National Standards for Writing. A Tool for Teaching and Learning* (The Norm project, 2012–2016), a large database of students' written texts has been developed. This database contains 5,500 texts written in different genres by children aged 8–13 collected at 20 geographically distributed schools. The database is a resource to which all interested researchers and students will have access. The data are owned by the faculty and administered by CLARINO Text Laboratory Centre, University of Oslo.

The Programme for Teacher Education administers the database KSSAF10 (grade-supporting tests in social studies K-10). The database currently contains empirical data from almost 15,000 pupils contributing to nine pilot rounds, as well as 500 teacher queries on teaching background and practice. The data can be used for longitudinal studies and research on evaluation procedures.

UiA: An eye-tracking lab is being constructed for use in video learning.

UiB: The Department of Education does not have major infrastructure such as databases, archives, laboratories and scientific collections of its own. UiB has not reported any other infrastructure relevant to education research.

UiO: Teaching Learning Video Lab (TLVL) systematically builds expertise about the use of video material in research and teaching, and about equipment relevant to educational research (i.e. hardware, software and recording devices). The lab assists researchers from different scientific areas

(e.g., medicine, education, psychology, linguistics). TLVL also has a role when it comes to safely storing and sharing sensitive data.

E-Infrastructure for Video Research (eVIR) is national e-infrastructure funded by the RCN and UiO. The main goal is to develop high-quality and up-to-date research methodologies in the humanities and social sciences. eVIR is intended to improve the accessibility and interoperability of video data and other context-sensitive sources, and strong emphasis is placed on developing a meta-database. eVIR will also develop methodologies for collaboration and data-sharing storage capacity.

The Oslo Assessment and Learning Lab (OALL) is a collaboration between eight partners at UiO and one international partner. OALL has two main aims: 1) to develop a comprehensive library of established assessment and intervention tools, and 2) to enable the study of learning in novel ways, with the emphasis on online measures (i.e. studying learning in real time) and computerised tools. This interdisciplinary and cross-faculty initiative was motivated by methodological advances within the cognitive sciences that have opened up new ways of studying learning and individual abilities across human lifespans.

EngageLab is a pedagogical design and programming facility that is capable of delivering mock-ups, prototypes and production-quality applications ('apps') for traditional web and mobile platforms (and combinations thereof). It specialises in delivering projects in which the pedagogical element is of central importance.

UniMedia is a media production facility that is capable of delivering video and mixed-media productions (including livestreaming productions) of commercial broadcasting quality, with dissemination of science being the main objective.

UiS: A digital lab is under establishment. It will enable staff and students to test new digital tools for research and teaching. There is also a visual attention/writing process laboratory, which is a laboratory for measuring eye movements and writing processes that enables researchers at UiS to study visual attention, reading and writing as they unfold in real time. In 2015–2016, the Reading Centre contributed to the development of an open source recording and analysis programme, OpenEyeWrite, which is compatible with all major eye-trackers. Investments over the past 10 years include eye-tracking equipment, three systems, upgrades, equipment for tracking writing processes, programming of ScriptLog (until 2009), and programming of OpenEyeWrite. The lab will need some new investments in eye-tracking equipment in order to cover the full range of visual attention tasks, as new software makes new processor demands of existing hardware. UiS also has a sports sciences test laboratory.

UiT: The faculty has extensive research infrastructure for History, Sami, Russian and English linguistics. The Registration Central for Historical Data, located at the Department of History and Religious Studies, leads the national INFRASTRUCTURE project, or Historical Population Register for Norway. The goal is a national Norwegian population register for the period since 1800, and where possible even earlier. The primary focus is on creating a register for the first two decades of the 19th century. The main objective of Giellatekno, the centre for Sami language technology, at the Department of Language and Culture, is to create grammar-based language technology for Sami and other northern languages. Giellatekno is specialised in machine translation, particularly of Sami languages, but it has later expanded into Russian and Baltic languages as well. English and Russian linguistics mean larger databases, and they have their own laboratories for the analysis of experimental data, Trolling. Collaboration has been established with both NTNU and UiO. All of the aforementioned areas will need both equipment and personnel in the years ahead.

2.1.3.1 Summary

Essentially, all the institutions praise their own library and its support functions. Several institutions maintain or have access to other infrastructure, often databases of different kinds. Some of them also possess or have access to laboratories of various kinds, where certain machinery or other types of technology are used. There are a few infrastructure-related projects where two or more institutions cooperate. There is often willingness to share one's own data with other institutions, if this is of interest.

No institution has signalled substantial problems or urgent needs with respect to infrastructure and database access. However, DMMH mentioned lack of funding related to the translation of a certain tool, but this problem must be regarded as marginal. Altogether, the situation seems to be quite satisfactory at the national level, with sufficient infrastructure resources in place for education research. Several institutions need further investments in the near future, for new infrastructure or the maintenance of existing infrastructure/databases.

The committee has neither been given nor asked for information about secure storage and data protection procedures. It is possible that such procedures need to be updated at the local level, so that the handling of data is in line with national legislation as well as the new General Data Protection Regulation.

2.1.4 Capacity and expertise in emerging research areas

The committee has not investigated this matter in depth, but it has noted a willingness to pick up on research in new, emerging research areas. There is interest in developing and strengthening the collaborative links with both national and international partners, which often results in exploration of new research questions and angles of investigation. Some of the institutions that participate in UTDEVAL have very recently undergone an institutional merger or are just about to do so, and this will (or it already has) most likely soon strengthen capacity at those institutions, as well as nurturing the development of new research lines within the institutions, as researchers from different locations meet and create new interfaces in their work. Many institutions express strong intentions to further strengthen interdisciplinary research, which the committee deems most promising. In the committee's view, there is, in general, substantial potential across Norwegian education research to continue capacity building and strengthen expertise, especially through broader international networks and intensified research collaboration, as well as through intensified collaboration with various user groups. The latter may require research ideas that pay more attention to the needs of practitioners and users outside academia. However, more evidence about how to achieve capacity building would be welcome, as well as information about which research areas are most urgent or interesting to explore further. The RCN or other bodies might consider launching investigations or research projects that could increase our knowledge of this. At the same time, it should be recognised that capacity building is closely related to recruitment strategies, which, as was shown above, is an area in which many institutions and research groups need to implement improvement measures.

2.1.5 The balance between basic research, applied research and commissioned research

The development of new expertise and the exploration of interdisciplinary research areas is, in part, connected to the balance between basic research, applied research and commissioned research. The committee was not able to explore this balance in depth, but it has no reason to believe that there is an unhealthy balance in Norwegian education research. The larger institutions carry out both basic

research and applied research, if, by the latter, we mean practice-oriented research with a societal impact. Smaller institutions – typically the university colleges – tend to focus more on applied research than on basic research, than do the universities. This is probably the result of differences in access to research funding. The only institute in UTDEVAL, NIFU, undertakes commissioned research of various kinds, and, as will be seen later in this report, often with success. Commissioned research is often equivalent to policy studies or investigations with relatively specific terms of reference. While the balance between basic, applied and commissioned research may be heavily weighted towards the applied side at some institutions, from a national perspective, there is no indication that the balance needs to be shifted more than very marginally at most. The committee found it not only reasonable but also promising that university colleges around the country engage in applied research, targeting local users and addressing practical education-related problems. Similarly, it is reasonable that strong and larger research environments at the universities and larger university colleges attract competitive research funding of a kind that allows them to conduct more basic research.

Having said this, there is a need to review the division of roles between the institutions in the Norwegian research landscape (based on capacities and proven performance), and to define how fundamental-strategic research and applied-practice or policy-oriented research can develop and be strengthened, and to be more organically connected in order to increase both the scientific quality and societal impact of Norwegian education research as a whole.

2.2 Strategic focus and collaboration

2.2.1 National and international collaboration

International research collaboration and networking have been discussed above (for instance in sections 2.1.1 and 2.1.2.6). This section deals with research collaboration at the institutional level and as part of the strategic focus of institutions. The primary sources of information about research collaboration are threefold: the institutions' self-assessments, data presented in NIFU's biannual reports on education research, and co-authorships.

Research collaboration is often measured using co-authorships as an indicator.¹⁸ In its report produced specifically for UTDEVAL, Damvad Analytics presented, for each participating institution, the share of publications that are co-authored with an author at a foreign institution. Only publications that are included in the Norwegian Publication Indicator were included. The data do not distinguish in a reliable way between the nationalities of the co-authors. Hence, it was not possible to determine the nationality of the co-authors. Damvad Analytics concluded that the overall share of international co-authoring across the participating institutions is 20 per cent, which indicates that international collaboration is not as common as in other research areas (see for, instance, *Comparing Research at Nordic Universities using Bibliometric Indicators – Second report, covering the years 2000–2012*)¹⁹, though it is still higher than the 14 per cent share found for research in the humanities in Norway.²⁰ There is substantial variation among the participating institutions when it comes to their international co-authorship shares. At one end of the spectrum, 8 per cent of UiB's education

¹⁸ For a review of the pros and cons of using co-authorship as an indicator of research collaboration, please see Melin G, Persson O (1996): Studying Research Collaboration Using Co-authorships, *Scientometrics*, vol. 36:3.

¹⁹ *Comparing Research at Nordic Universities using Bibliometric Indicators – Second report, covering the years 2000–2012*, NordForsk, Policy Paper 2, 2014

²⁰ Aksnes D, Gunnes H (2016): *Evaluation of research in the humanities in Norway. Publication and research personnel. Statistics and analyses*. NIFU, Report 2016:14, page 25.

research is co-authored internationally, compared to 40 per cent at NIFU, at the other.²¹ HiH, HiL and UiO also have comparatively high shares, above 30 per cent. Table 3 presents the shares for all institutions.

Table 3. The share of publications that are co-authored with a foreign institution (2015), counting publications from selected individuals affiliated to the institutions participating in UTDEVAL. Note: Only publications that are included in the Norwegian Publication Indicator (NPI) are included.

Institution	Share
DMMH	14%
HiB	28%
HiH	32%
HiL	31%
HiOA	11%
HiSF	10%
HSN	14%
HiØ	15%
NIFU	40%
NLA	10%
NTNU	19%
UiA	23%
UiB	8%
UiO	31%
UiS	21%
UiT	18%

Source: DAMVAD Analytics 2017, Based on CRISTin data (January–April 2017).

Essentially, all institutions participating in UTDEVAL have increased international collaboration as a strategic goal. Most of them have some support functions or measures in place, such as funding of conference participation, guest visits, sabbaticals, and designated services for research applications (normally for EU-funded research) and external relations in general. Bilateral student exchange programmes are also in place, in addition to ‘regular’ opportunities like Erasmus+.

As an example, HiOA reported that the faculty has a senior adviser dedicated to facilitating international collaboration and exchanges. All the faculty’s prioritised partnerships need to have both research and student exchange components. HiOA’s EU-team provides training as well as financial, administrative and partner-search assistance for researchers seeking international funding.

²¹ Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics, page 33.

HiOA's personal overseas research grant scheme covers additional costs associated with research visits abroad by doctoral and postdoctoral fellows.

As another example, from a smaller institution, HiSF reported that all personnel receive NOK 5,000 annually to participate in seminars and conferences, and for travel for scholarly purposes. To facilitate international cooperation even further, HiSF has established a fund for overseas research grants at the RCN rates. These grants are open for application from all academic staff. The main purpose of such grants is to facilitate research stays abroad, which should normally have a duration of three to six months.

Relatively similarly to what the institutions' publication pattern revealed, the international collaboration network indicates that a majority of the institutions have a few selected partners. These collaborative links are often active and may involve both senior and early career staff, as well as PhD candidates and students. Partners are more often found in Europe than overseas, but there are also examples of close and active collaboration with partners on all other continents. Countries in the English-speaking hemisphere dominate in terms of where partners are from.

Damvad Analytics presented a map of international co-authorship links for the institutions participating in UTDEVAL. It is evident that UiO has a wide-ranging network, and it is also possible to see that other networks are formed around other institutions, for instance NTNU, UiB-HiB, UiS and HiOA. HiH seems to have developed a smaller network of its own. The map is highly detailed and the committee refers to this source for further scrutiny.²²

As an illustration of networks in the English-speaking hemisphere that go beyond research collaboration, HiB, in collaboration with partners from the Australian Catholic University and Kings College London University, hosts a PhD summer school called Researching Teacher Education in Cultural Historical Activity Theory. Professors who teach the doctoral programme and PhD students researching teacher education participate. An interesting possibility is offered at HiL, where staff can use a dedicated office space at the University of California, Berkeley.

There are of course exceptions to the many well-developed contacts with Anglo-Saxon partners. For instance, DMMH has for a decade received NORAD funding to organise and facilitate the establishment of 'early childhood education and care' (ECEC) teacher education in Sub-Saharan countries. For DMMH, this has resulted in a network of ECEC teacher education institutions in Namibia, Botswana, Tanzania, Swaziland, Kenya and Mozambique. HiH has also developed contacts and cooperation with Sub-Saharan universities.

If we look somewhat more closely at Norway itself, there are interesting patterns of national research collaboration. Damvad Analytics has presented data that point towards relatively strong collaborative links between the universities and the university hospitals in the same region. There are also relatively strong links between universities and university colleges in the same region.

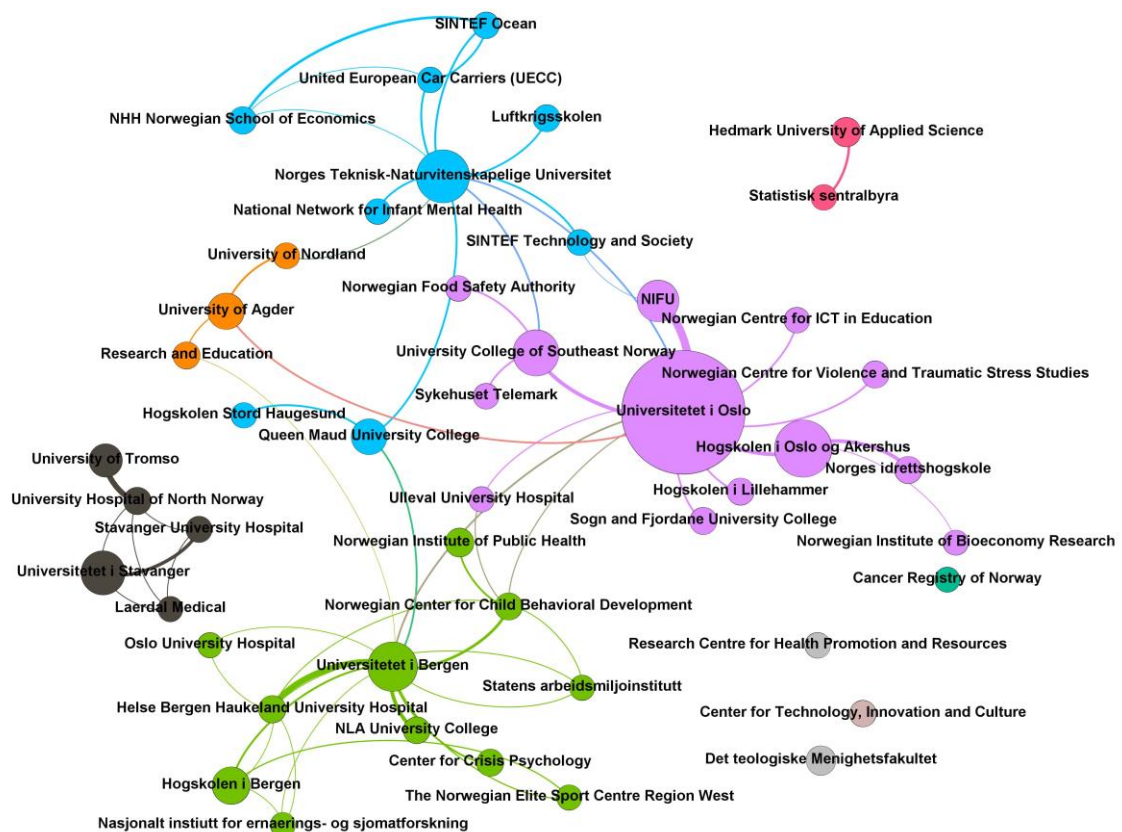
Figure 2 shows a co-authorship map of national research collaboration links. It confirms the picture of certain collaborative clusters around the larger institutions. For instance, several regional institutions, hospitals or other research organisations are clustered around UiB, HiB and NLA, and

²² Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics, page 37.

similarly around NTNU and DMMH. The link between UiO and NIFU is particularly strong, and UiO's and NIFU's strong links to HiOA are also worth noting.²³

In addition to links through co-authorships, there are links through other types of collaboration, for instance through the national research schools, or non-academic partners. Almost all institutions have reported frequent and relatively intensive collaboration with non-academic partners or other key actors in addition to the academic community. Some have reported a wide range of such partners. The result of collaboration with non-academic partners is followed-up in section 2.5 on societal impact.

Figure 2. Patterns of national co-authorship for Scopus-indexed journals in 2015. Counting Scopus-indexed publications from individuals affiliated to the participating institutions.



Source: DAMVAD Analytics 2017, based on data from Scopus. Note: The data are based on publications from 2015 indexed in Scopus. The colour indicates which institutions collaborate most. The number of publications that the institution contributes to defines the size of the nodes. The size of the ties is an indication of the interaction frequency between two institutions.

2.2.1.1 Summary

The committee considered the available information about research collaboration – both national and international collaboration, and collaboration with other actors. The outcome of this analysis is

²³ Bundgaard Vad T, Lund Jensen R (2017): *Education research in Norway. Statistical analysis of publications and research personnel*. Damvad Analytics, page 35.

that, with only three exceptions, the 16 institutions have several relatively well-developed collaboration links, and, in some cases, very well-developed and strong links, both nationally and internationally. Having said this, there is still room for improvement, and this has been commented upon previously in this report. Especially the international research collaboration network could be wider and it could be used more effectively to build research capacity and develop knowledge exchange strategies, thereby ensuring that Norwegian research groups and other types of research units are connected to a larger number of international partners. The amount of co-authorships could also be higher, which, in turn, would have a positive impact on the number of publications in English, and thus the visibility of education research from Norway.

It should be noted that the three institutions that have more room for improvement than the others are all among the smallest institutions.

2.2.2 Instruments for increased collaboration

Pursuant to its mandate, the committee was tasked with investigating conditions that promote collaboration between Norwegian and international research actors and instruments that can strengthen Nordic cooperation and cooperation with the EU and North America. With respect to international research collaboration, the needs of education researchers do not differ from the needs of other researchers. There is a substantial amount of literature about the preconditions for research collaboration. None of the institutions stressed lack of financial or administrative support, whether external or internal, as a reason or explanation for not having more international research collaboration. Conversely, many have mentioned that they have good support mechanisms available to them. Thus, it is not easy to point to specific gaps in the system or to specific instruments that the RCN or other authorities could provide or develop, other than that increasing the quality of the research and increasing the number of international publications will make researchers from Norway more visible and attractive as collaborative partners for the international research community.

There is no single agreed definition of ‘internationalisation’, but for many academics, it probably means widened perspectives and insight into new ways of conducting research and teaching, and presenting results. Experiencing different academic cultures than the culture at home, and establishing contacts and cooperation with other academic partners, is another side of the coin. Openness to such new perspectives is more or less a prerequisite for the advancement of research.

Research collaboration, and international research collaboration in particular, often occurs as a result of or through individual mobility. In the committee’s view, however, international collaboration is strongly enhanced by mobility, whether longer or shorter visits at the respective partner institutions. Following this argument, supporting mobility is an important prerequisite for increasing international research collaboration.

In 2014, NordForsk presented two relatively comprehensive studies of researcher mobility in the Nordic countries, combined in one volume.²⁴ In the first study, nearly one hundred respondents were interviewed about their experiences of mobility. The authors concluded that it is not always financial resources that are lacking. Instead

it is a significant challenge to understand how research mobility should be supported. It is simply difficult to be specific; it is difficult as a funding organisation to act in a clever way and design instruments which target certain groups or certain parts of the system in an optimal and fully efficient manner.

²⁴ *Crossing Borders – Obstacles and incentives to researcher mobility*. NordForsk, Policy Paper 3, 2014

They went on to say that

the solution is to accept that narrow and specific instruments tend to miss the goal too often, be inefficient and not in line with researchers' needs. Findings in this study indicate that researchers need support programmes with wide 'entrance gates' and considerable room for moving and manoeuvring once inside, according to the preconditions and needs of each individual. They need flexible support programmes, where each individual's unique situation is covered and allowed for. This in turn requires intelligent funding organisations, and intelligent management and everyday handling of the funding programmes.

(NordForsk, 2014:60)

Since sufficient financial resources do not seem to be the problem for education researchers in Norway with regard to mobility, it may be pertinent for the RCN and other funding bodies to critically review existing mobility programmes and make sure that they actually meet researchers' needs for flexibility. Experience shows that many mobility schemes try to force researchers to shape their mobility in certain ways, be it in terms of the length, location, nature, outcome or something else. It is necessary to meet the researchers' actual needs and recognise that one size does not fit all. The committee leaves it to the RCN and other funding bodies to consider this point; the committee has not investigated the relevance of this point further.

One particular type of support for research collaboration targets participation in programmes funded by the European Commission. Many institutions report that they have support facilities of various kinds in place for assisting researchers with project applications for EU funding. Such projects almost always include international research collaboration. It is a fact that Norway's overall participation level in the framework programmes is fair, but not optimal. A recent OECD report refers to 'good but not excellent performance and skewed success rates'.²⁵ Studies have been undertaken of how the level of participation can be increased. One such study (from 2012), which did not investigate education research but three other fields' participation in the 7th framework programme (Health; Information and Communication Technologies; and Environment research), found that HEIs' funding situation is so beneficial that the incentive to apply to the framework programmes is weak.²⁶ Several interviewees stated that the generous government base funding system for HEIs is a direct disincentive to internationalisation, in general, and framework programme participation, in particular. University colleges found framework programme participation particularly hard. On the one hand, they rarely have research groups that are sufficiently large and competitive enough to make a mark internationally. On the other hand, university colleges felt hampered by an image problem; why should a consortium settle for a university college when there are willing universities?

The study presented a set of recommendations for the RCN to consider, some of which may have been dealt with and some may still be relevant. Among the latter, recommendations relevant to education research include:

- Strengthen the existing, competent framework programme information and support system so as to offer genuine added value compared to the Commission's own websites through:

²⁵ OECD (2017), *OECD Reviews of Innovation Policy: Norway 2017*, OECD Publishing, Paris, pages 63-64.

<http://dx.doi.org/10.1787/9789264277960-en>

²⁶ Åström et al (2012): *On motives for participation in the Framework Programme*. Technopolis Group, 2012

- Providing targeted domain-specific intelligence on the latest framework programme developments before it becomes public
 - Catering to the needs of both novices and experienced framework programme participants
 - Being the ultimate, knowledgeable source of information on rules for participation, intellectual property rights, reporting, auditing etc.
 - Providing more hands-on support, such as pre-screening of proposals by experienced proposal authors and evaluators, for organisations that do not have their own EU support functions
 - Utilising experienced framework programme participants in information campaigns to disarm some of the rumours regarding deterrents
- Devise an instrument to entice more Norwegians to act as proposal evaluators for the Commission
 - Devise an instrument to persuade Norwegian organisations to assume larger roles in framework programme consortia
 - Devise instruments (or retain existing ones) to support newcomers to the European arena in building up their networks. To this end, efforts and instruments to increase the Norwegian Marie Skłodowska-Curie actions participation should be developed

In contrast to the presumed abundance of available funding, it should be noted that, in NIFU's report on education research for the year 2015, the main barrier to conducting education research that was mentioned by the research environments that responded was lack of research funding. This was also a recurring argument in the self-assessments submitted to UTDFEVAL. Especially the smaller institutions emphasised scarce financial resources for research as a barrier. Whether it is actually the case that education research is worse off than the three above-mentioned areas, or whether this result is what any study would find for any area if it asked such a question, is beyond the scope of UTDFEVAL's investigation. If it is the case, however, then better incentives ought to be in place for applying for funding from Horizon 2020 for education research than may be the case in other research areas.

Of course, a lot has happened since 2012. In 2017, the RCN commissioned a study to learn more about the possibilities for increased participation in Horizon 2020 in particular, but also in relation to other European Research Area activities and future framework programmes. The study focused on Health, Information and Communications Technology, and Industry, and it addressed the following objectives for each area:

- It analysed participation patterns in Horizon 2020 and placed them in a broader context of national research and innovation (R&I) objectives and policies, and national R&I capabilities
- It analysed the potential for increased participation in the framework programmes of various groups of research institutions, businesses and public sector organisations
- It identified and assessed relevant support measures and other actions aimed at increasing participation in the framework programmes
- It made recommendations on how to increase participation in each of the three areas. The recommendations applied to the various levels of institutions and actor groups identified in the Government's Strategy for Research and Innovation Cooperation with the EU

To summarise, education research in Norway would, in general, benefit from developing wider international networks and intensifying international research collaboration. This requires some extra effort on the institutions and the researchers' part when it comes to establishing strategic contacts and collaborations. The RCN and other authorities should critically consider whether

existing support instruments are flexible enough and meet researchers' needs; it should be made clear here that the committee has not found evidence that support instruments are inflexible, or that there is lack of funding for collaboration and mobility. However, there are often quite specific restrictions built into mobility programmes and internationalisation schemes. They may, for instance, be related to the duration of the mobility, the destination or work tasks. Such restrictions are not always helpful for the recipient of the support. Instead, they may reduce willingness to participate and the outcome of the support instrument. Flexible support instruments that meet the needs of individual researchers and research groups are, in the committee's view, likely to be more successful than instruments with strict frameworks and limitations.

The institutions should themselves make sure that internal facilities are in place for supporting research applications. National collaboration with both academic and non-academic partners is sufficiently well-developed and well-functioning.

2.3 Summary of numerical scores

The evaluation of the *quality and capacity* of education research and *strategic focus and collaboration* (sections 2.1 and 2.2) included (but was not limited to) evaluating two levels of the participating institutions: the research group level and the institutional level. The latter included the research area level in those cases where an institution had submitted more than one self-assessment of a research area. As explained in section 1.5, scores from 1 to 5 were awarded on several dimensions for the research groups and for the institutions. An overall score was given for the research group and the institution as a whole. These overall scores summarise, in numerical terms, the committee's assessments of research groups and institutions. It may be relevant to present these overall scores and compare the overall score for research groups that an institution was awarded with the score for the institution as a whole.

Figure 3 shows a plot of mean²⁷ research group and institutional scores.²⁸

Three institutions are awarded the score 3 for both the research group level and the institutional level: HiH, NLA and UiB. For the rest of the institutions, there is a varying degree of deviation between the scores. The institutions with the largest deviation are HiSF, UiT and NTNU, which were all given low research groups scores compared to their institutional scores.²⁹

It should be reiterated that the evaluation of research groups contained assessments of societal impact and the impact on teaching, which were not taken into account in the numerical scores. The institutional assessments, on the other hand, took a wide range of quantitative and qualitative information into account. As a supplement to this report, all the institutions were given feedback at research group level, and a full assessment at the institutional level.

²⁷ Mean value of the overall scores that research groups from the same institution were given.

²⁸ It should be noted that the scores were not completely independent of each other, since the institutional scores were partly based on the research group evaluations. For DMMH and HiØ, the institutional assessment was carried out as described in section 1.5, without taking any research group assessments into account.

²⁹ As previously noted in the report, recent or ongoing mergers between institutions mean that the institutional landscape at the time of writing – at the end of the evaluation – is different from when the evaluation started and the institutions decided to participate.

Figure 3. Research group mean scores vs. institutional scores (1–5). DMMH and HiØ did not submit any research groups and are not included. DMMH's institutional score was 2; HiØ's institutional score was 1.



2.4 Impact on teaching in higher education

The research groups were instructed to report on the impact on teaching in their self-assessments, and they were expected to report on the interplay between research and teaching at research area level. The six expert panels evaluated the impact on teaching at research group level and awarded scores from A to C (A being highest), plus a brief written assessment. DMMH and HiØ did not submit any research groups to UTDEVAL and could thus not be evaluated with respect to research groups' impact on teaching. NIFU, being a research institute, does not engage in teaching, and could neither be evaluated with respect to impact on teaching nor on the interplay between research and teaching.

The circumstances differed between the participating institutions. While some had several teaching programmes on all levels (bachelor, master and doctoral level), others, for instance, had only one programme and no doctoral training. Consequently, the possibilities for research to have an impact on teaching also differed between research groups, research areas and institutions. Moreover, while the researchers' engagement in teaching was often listed, the impact the research had on that teaching was not made explicit and, in some cases, not reported at all. It was difficult, therefore, for the committee to evaluate the impact of teaching and interplay between research and teaching based on the evidence provided. Instead, substantially more emphasis and attention was devoted to other dimensions in the self-assessments.

Having said this, the scores and written assessments for the 46 research groups' impact on teaching revealed a few interesting results. When aggregating the scores for the 13 institutions (excluding DMMH, HiØ and NIFU), they fall into four categories: an A category, a B+ category, a B category, and a C category.

Only one institution is included in the A category, UiO. Of its ten submitted research groups, seven were given an A, two were given a B, and one was assessed to be between A and B. An example of a written assessment for one of the groups that received an A reads as follows:

A claim is made for significant impact on teaching which is convincing. Strong links exist between activities and study programmes and it is especially significant for Teacher Education programmes in the context of the need for research based teacher education programmes. In this way the research group can be seen as an example of best practice in this field. Furthermore, the involvement of MA students and [a named specific data base] offers significant potential for impact on schools and also a bridge to doctoral studies.

Five institutions fall into the B+ category: HiH, HiOA, HSN, UiA and UiS. Their research groups were awarded Bs plus one A, and generally positive written remarks.

The institutions included in the B category are HiB, HiL, NLA, UiB and UiT. They received Bs only or Bs and one C (except HiB, which was awarded four Bs, one A and one C). A few illustrative written assessments motivating a B-score read as follows:

The research of the group is relevant for programmes within the institution. However, there is little evidence on the impact on teaching, other than the fact that a great deal of person hours are spent on this area, including teacher education. It is a pity that further evidence has not been offered, as the group is likely to have a very positive impact on student teachers, and thus influence educational practice, given the focus of the research centre.

It is not possible to discern impact on teaching from the evidence presented. It would appear that the team contribute to teaching programmes at the host institution, but the extent of this is not outlined. However, the research focus is certainly relevant for the teaching programmes.

The research group significantly contributes to teaching activities at the BA, MA and PhD levels at the host institution. It also describes its research as highly relevant for the study programmes in teacher education, but does not provide any additional argument.

The committee recognised that much education research has a potential to influence and have a positive impact on teaching at most institutions. This is as far as the committee is able to go in terms of evaluating the impact on teaching. As the above quotations indicate, lower scores were often given due to lack of evidence. The committee does not have sufficient evidence to undertake a more detailed assessment or make recommendations with respect to the impact on teaching or the interplay between research and teaching. The committee believes that there is added value in strengthening the cooperation between research and teacher education.

2.5 Relevance and societal impact

2.5.1 User and impact analysis

In order to obtain data for assessing relevance and societal impact, the RCN requested that a user and impact analysis be conducted as part of UTDEVAL. This chapter relies heavily on the results and conclusions of the user and impact analysis. References to it will not be repeated throughout the

chapter, however. The user and impact analysis builds on a survey of a large set of users of education research, interviews with users of education research, and impact cases submitted by the participating institutions and the research groups.³⁰

As part of the user and impact analysis, a survey of users of education research from the 16 institutions was requested by the RCN, as well as interviews with users. In order to distribute such a survey, user contacts were obtained from the institutions. The authors of the user and impact analysis noted some methodological limitations of the survey. There were difficulties relating to the recruiting user contacts. Not all institutions were able, or willing, to provide a sufficient number of user contacts. While the total number of users presented by the institutions was relatively high (around 2,500), there was a considerable imbalance between institutions, between user categories across institutions, and between Norwegian regions. The internal response rate also varied considerably between different sets of questions in the survey.

The team behind the user and impact analysis made endeavours to even out these imbalances by attempting to recruit more users from some institutions, and when analysing and interpreting the results. While the statistical relevance of the survey is acceptable for the user population as a whole, including for questions with the lowest numbers of respondents, the margin errors increase when broken down into user categories. This was handled by keeping the number of categories low, and readers were encouraged to focus on the overall patterns and the most distinct differences between user categories. The authors claim that sufficient measures were taken to handle these imbalances when interpreting results and drawing on them to reach conclusions.

When the participating institutions were asked to submit users of their education research, the RCN had drafted a definition of users. It is relatively comprehensive, and the committee proposed a revised definition, which is presented in chapter 3. The following definition of users was specified and shared with the institutions:

Users in the education sector. This includes both public and private users, but public users probably dominate the category. This includes teachers, pre-schools/kindergartens, schools and other education institutions (including universities and university colleges), municipalities, counties, employer organisations, academic organisations and other interest organisations that are using the results from education research, and that may have a dialogue with the research environments and may be cooperating with them. The category also includes the university and university college administrations (but not their own researchers).

State governing bodies. A small number of bodies, e.g. the Ministry of Education and Research, including The Norwegian Directorate for Education and Training, and to some extent NOKUT (the Norwegian Agency for Quality Assurance in Education). These form a separate category of users. Naturally they use the results from the education research to a large extent, but for other purposes than other users in the Norwegian society. Partially as a basis for policy and analysis, partially for reporting and administrative purposes.

³⁰ Fridholm T et al. (2017): *User survey and impact assessment of the Norwegian education research*, Technopolis Group

Other societal actors. This category contains other societal actors such as working life actors, representatives for the voluntary sector and the general public. It is hard to predict the size of this category, but it is tentatively included. Final decisions regarding the division of users will be made when we know who and how many users there are.

Users do not include academic research partners.

Table 4 shows the survey responses by user category and set of questions. As can be seen, there were 547 responses in total, but fewer when broken down by user category or set of questions.

Table 4. Web survey respondents by user category and set of questions.

<i>User category</i>	<i>1. Background info.</i>	<i>2. Type of user relation</i>	<i>3. Impact</i>	<i>4. Quality and relevance per institution</i>	<i>5. Status of the institution</i>	<i>6. Education research in Norway as a whole</i>	<i>7. User capacity</i>	<i>Any question (Share of total)</i>
Schools and kindergartens	287	270	168	114	120	120	119	289 (53%)
HEIs	45	41	32	25	26	26	25	45 (8%)
National public sector	96	90	71	60	60	59	60	97 (18%)
Local and regional public sector	67	59	45	36	35	35	33	69 (13%)
Interest organisations	32	29	22	18	17	17	18	33 (6%)
Other	13	13	7	5	4	5	6	14 (3%)
All	542	502	345	258	262	262	261	547 (100%)

Source: User survey and impact assessment of the Norwegian education research, Technopolis Group

The team behind the user and impact analysis also conducted a relatively large number of in-depth interviews (51) in order to collect qualitative information in addition to the survey data.

Table 5 presents the number of interviews by user category.

Table 5. Interviews by user category.

<i>User category</i>	<i>Number of interviews</i>	<i>Share of total</i>
Schools	11	22%
Kindergartens	5	10%
HEIs	0	0%
National public sector	12	24%
Local and regional public sector	10	20%
Interest organisations	11	22%
Other	2	4%
All	51	100%

Source: User survey and impact assessment of Norwegian education research, Technopolis Group

Both the institutional self-assessments and the research group self-assessments contain impact cases. An impact case is an example of the impact of research outside the research community itself. Dissemination of research findings does not qualify as impact. The RCN asked institutions to submit maximum one impact case per research area and, in addition, a maximum of one case per ten researchers in that area. Only cases based on research that had to a significant extent been carried out by the institution during the last 10–15 years were eligible, although references could be made to longer research traditions at the institution. The RCN asked the institutions to prioritise cases that were more recent. In all cases, the research underpinning the impact should be of high international standing. The RCN only asked for *societal impact*, which excluded impact on other research and impact on the institution itself. The RCN also provided examples of what societal impact could be, for instance changes in activities, perspectives, economy, competence, policy etc. among individuals, groups, organisations, in a certain public sphere, or in other parts of society, and locally, nationally or internationally.

In total, 78 impact cases were submitted, 59 cases from institutions and 19 from research groups. After adjustments, primarily for impact cases that were reported by both institutions and research groups, 70 cases were used in the analysis of impact. Appendix F presents the number of impact cases per institution.

2.5.2 Interaction between researchers and users

As regards locally oriented users³¹ relations with research institutions, the results from the survey carried out as part of the user and impact analysis show that schools' and kindergartens' relations with education research institutions are characterised by one-way communication. They absorb some of the results of the research and participate in presentations, but have limited opportunities to interact with the institutions. In the survey, a multiple-choice question was asked about users' relations with institutions. To the question 'What mainly characterises your user relation with [one named institution's] education research?', 30 per cent of schools and kindergartens chose the answer '“Took part of research results’, while another 10 per cent ‘Participated in presentations’. Both these answers indicate communication of a one-way nature. The survey shows similar results

³¹ *Locally and regionally oriented actors* refers to schools, kindergartens and the regional and local public sector.

for the local and regional public sector.³² Meetings and other interactions with researchers and research institutions are more common in the local and regional public sector than among schools and kindergartens, probably because the former tend to play a coordinating role in the municipality or county authority.

School leaders' interest in research seems to be a strong determinant of schools' research engagement. Although the interviews with schools were mostly with school leaders and not teachers, the interviews indicate that it is more or less only school leaders who have enough time to look up research and prepare workshops etc. on a regular basis. School leaders also function as gatekeepers to some extent, by being the natural contact persons between schools and education research institutions, as well as between the school and the municipality, or between the school and other schools. Through these networks, school leaders are exposed to research that they are able to disseminate or integrate in their own schools.

When it comes to nationally oriented actors³³ and HEIs' relations with research institutions, the user and impact analysis reported that most of the interviewed representatives of the national public sector and interest organisations are relatively high consumers of education research. They also use research from other kinds of research institutions, for example economics or social science research institutes. They often have a background in or near research institutions, and their respective organisations have comparably good resources and networks for accessing and using research. They have better opportunities than locally oriented actors to interact with researchers. National public agencies and the Ministry of Education and Research also regularly commission research projects, which could be a natural arena for interaction with researchers. Interest organisations rely a lot on their often extensive networks, both within the sector through their members, and in the education policy and research field.

Many users, not least key users at the national level, suggest that Norwegian education research has developed positively during the last decade in terms of both quality and volume. Quite a few users, at the local as well as the national level, stated that researchers' interest in the teaching profession and didactics has increased. There are several reasons for this positive development. The government's sector funding for education research has increased, through the RCN as well as through a number of research centres and other initiatives.³⁴ The focus on research-based policies has clearly influenced research in terms of both its volume and direction; the impact assessment and user survey reflect the fact that there are many projects and other initiatives where research is linked to extensive national policy measures. In addition, several HEIs have made strategic investments in (practice-oriented) education research.

The committee noted that a large number of users called for more interaction between researchers and schools and kindergartens, and for more research on didactics and other education-related practices. These include practically all users in schools, kindergartens and at the local and regional level. Intensified interaction could lead to researchers learning more about which problems the sector faces, and to the sector having a better chance of learning about and absorbing research. Research is thus expected to become more relevant and to be used more. Many users at all levels also want schools and kindergartens to be involved in the research process and to co-produce research. Above all, they hope to establish a 'scientific way of working' – reflective, collective,

³² *The regional or local public sector* refers to county authorities, municipalities, regional or local public agencies, and public enterprises that are owned by county authorities or municipalities.

³³ *Nationally oriented actors* refers to the national public sector and interest organisations.

³⁴ Gunnes H, Rørstad K (2015): *Educational R&D in Norway 2013*. NIFU Working Paper 2015:18

assessing – in schools and kindergartens, with positive consequences for the internal quality culture. Several national policy measures during the last decade have been designed to promote such a development.

As interest in research-based education grows, the geographical distance between schools and research institutions becomes a challenge. It is evident that schools located far away from research institutions find it more difficult to interact with researchers. Moreover, these schools are typically located in smaller municipalities, with fewer resources and weaker networks. In some regions, public actors have taken the initiative to establish platforms for collaboration between municipalities or schools and research institutions in order to address this challenge, but the impression is that there are clear differences between regions in this respect. It is difficult to identify solutions to this challenge based on the empirical material, but the issue should not be overlooked.

The user and impact analysis reported that almost every interviewee in schools and kindergartens called for research that includes a qualitative part that is related to the education context, for example didactics. They argued that the implementation of research is inevitably a qualitative task in the end. There is also significant interest among all user groups in evaluations and impact assessments, and in other kinds of research that assess the quality or efficiency of various educational practices.³⁵ Other research topics that are particularly called for include:

- Higher education, particularly the quality of education and its relevance to the labour market
- Management and organisation of schools, kindergartens and HEIs
- Transitions between educational stages and their implications for dropout rates
- Links between education and working life

Quite a few users call for research that is not necessarily education research as such – relevant expertise can also be found in, for example, the fields of sociology, social psychology, psychology, ethnology, anthropology, economics and medicine. The committee noted that several key users make important use of education research and of methodological skills from institutions and environments that are not part of this evaluation, and that fall under other academic disciplines. The committee's interpretation is that users are calling for more interdisciplinary collaboration between education researchers and others that combines the strengths of several fields. Such interaction between disciplines is valuable and contributes to the development of education research.

Many users at the local and regional level appear to be calling for more highly practically oriented research, for example quality assurance of education or of organisations. Such opinions should be interpreted with some caution. The role of education research involves much more than just solving problems that practitioners find challenging or resource-demanding. This applies in particular to education research at HEIs. Education research plays an important role in the quality of teacher education, and in deepening society's understanding of education-related issues through investigations that are far from resulting in practically applicable solutions.

In the same vein, not only do researchers adjust to practitioners' needs, the sector also has to be open to new perspectives and possible changes. Time was cited as the most important factor behind the challenges users experience in relation to making use of research, but professional identities and cultures in many schools and kindergartens also do not seem to be optimal for the uptake of research. One indication of this was that quite a few interviewed teachers and others in the school sector appeared to be somewhat sceptical about research they could not link directly to their own experiences. Another indication was that practitioners often perceived researchers as speaking to

³⁵ Answers mainly come from educational leaders, less often practising teachers.

the researchers' colleagues, and not to them. These cultural gaps are challenges to be overcome. The committee believes that they should serve as arguments for increased interaction between educational researchers and educational practitioners.

It can be asked what it is reasonable to expect in terms of physical presence of researchers in schools or kindergartens. In 2016, there were 5,980 kindergartens, 2,858 primary and lower secondary schools, and (in 2015) 452 upper secondary schools in Norway.³⁶ Assuming that the 1,556 researchers listed for UTDEVAL on average spend 30 per cent of their time on research, there are around 475 full-time equivalents (FTEs) devoted to research.³⁷ With 3,310 schools and 5,980 kindergartens, that is a ratio of 7 schools and 13 kindergartens per research FTE. Based on this superficial calculation, an average of one researcher visit per year at every school would seem plausible (particularly since schools are in focus among a large majority of the researchers).

The user and impact analysis reported that almost all interviewees in schools, kindergartens and the local and regional public sector called for easier access to research (e.g. through short summaries of research in popular science language). They find scientific reports too long and often rather inaccessible in terms of language. In addition, overall, the users thought it was too difficult to find useful research, and they suspect that it is sometimes arbitrary what research they come across. Many of them call for help to find the most useful and relevant research that matches their needs.

A handful of researchers were spontaneously mentioned by many users as important to them, which indicates that a small number of researchers hold rather prominent positions at the interface between the education research institutions and the users. Obviously, this is not in itself evidence that these well-known individuals produce, or disseminate, high-quality research to the users.

Users were asked to assess the status of the institutions. Nationally oriented users pay most attention to an institution's brand. Locally and regionally oriented users are not indifferent to brands, but do not find them that important. Institutions or research groups that were frequently mentioned in positive terms, include (in alphabetic order):

- HiH, where users appreciate the Centre for Studies of Educational Practice (SEPU) for its research as well as for being engaged in dialogue with practitioners all over Norway
- HiSF, for research on school leadership
- NIFU, which appears to occupy a key position in-between academia and the practice field, and has conducted a number of studies that users explicitly mention as impactful
- UiA, the Centre for Research, Innovation and Coordination of Mathematics Teaching, which several users point out has provided useful results
- UiO, which users, overall, appear to view as the scientifically leading institution
- UiS, in particular the Norwegian Reading Centre, which many users have a relationship to and find important

Almost all the other institutions were also mentioned in positive terms, typically by users in the local region, for being engaged in collaboration with practitioners. The interpretation in the user and impact analysis, which is shared by the committee, is that the institutions are perceived as relatively even in status, except for the established universities, which are markedly more highly valued.

³⁶ Statistics Norway (2017). Website: <http://www.ssb.no>

³⁷ With the broadest possible definition, in 2015, there were 2,914 individuals conducting education research in Norway (Gunnes H, Hovdhaugen E, Olsen B: *Utdanningsforskning i Norge 2015*, NIFU, Rapport 2017:4).

2.5.3 Impact cases

In this section, the same review of the submitted 70 impact cases that were included in the user and impact analysis is presented below under the five thematic areas that the committee organised its work around. Nine good selected examples are described in more detail in Appendix F. The committee decided to repeat this review of the impact cases since, altogether, they show the comprehensive and diverse interaction, and societal impact, that the institutions and research groups are engaged in.

2.5.3.1 Profession, teachers and practice

Quite a few impact cases focus on the teaching profession and its practice in the broad sense. Cases mentioned under other headlines often contain these elements as well. The University of Oslo presented a case, 'Learning in the school for the future', based on a comprehensive, research-based green paper on education from 2015, which is expected to be the key document for educational reforms in Norway in the years to come. The group paid significant attention to in-depth learning, assessment and exam procedures and core competencies, such as learning, writing, reading, oral presentation, and skills required to participate in a digital and democratic society. The University of Oslo also presented an impact case on the management of the education system in Norway since the implementation of the Knowledge Promotion reform in 2006. The researchers carried out a formative evaluation project by studying central policy documents, interviewing key actors at different levels of the system, distributing national surveys to the same actors, and carrying out in-depth studies of ten schools. Impact on national policies is claimed – it led to key concepts being better defined and operationalised, and, subsequently, to extensive policy measures, for example *Assessment for Learning* (Vurdering for læring). It also had an impact on the division of responsibility and authority at the local level.

A number of impact cases concern organisation for learning in schools, either among teachers or among students – or both – through the promotion of collective cultures and practices. NTNU presented three impact cases (partly) based on what is known as the Lade project, see Box 1 in Appendix F. NTNU also submitted an impact case on school-based development in lower secondary schools. Impact on policies for school leadership in general was claimed, and, according to the institution, the research has been widely used in schools and teacher education programmes throughout Norway. HiH claimed impact on assessment procedures for learning and pedagogical analysis through the 'LP-model', a framework for organisational improvement in schools and kindergartens. According to HiH, 900 schools and 300 kindergartens, especially in Norway and Denmark, have used LP. The claimed impact of LP concerns pupils' learning and social outcomes, and its contribution to pupils' enjoyment of school, less need for special education etc. The institution also argued that LP has shaped school management, teaching and teacher education programmes, and empowered children in kindergartens. UiO submitted an impact case on school leadership, see Box 2 in Appendix F. NLA presented a case on the same topic, based on its role in the national education of school leaders, for whom it has provided an education programme since 2009. NLA has conducted research related to this programme. Impact on the content of NLA's education was claimed.

In the FIVIS project, NTNU demonstrated the diversity of assessment procedures that exists between and within schools, and claimed impact on the ambitious national programmes for assessment (*Vurdering for læring*) and for lower secondary education (*Ungdomstrinn i utvikling*). UiT also presented an impact case relating to the above-mentioned national programme for assessment. Researchers at the institution led a research project that involved 19 schools. It showed that groups of teachers at the schools that were responsible for developing new assessment practices functioned

as 'translators' when the national programme was implemented in the schools. The impact was on the participating schools. HiSF claimed impact on the national programme for lower secondary education through a research project on the impact of national quality assessment regimes on systems for learning and teaching development in schools. According to the institution, the impact primarily consisted of capacity building in schools and municipalities, as well as at the national level as regards assessment systems. Several interviewees across Norway confirmed the influence of the institution in this regard.

UiO presented two more impact cases that primarily concerned the teaching profession. One of them concerned professional expert cultures and how their epistemic characteristics create opportunities for learning. Impact was claimed on teaching and nursing communities through their recognition of the characteristics of their knowledge bases, and in actions taken to strengthen them. The institution argued that its research was used quite widely in policy documents, also in the Norwegian parliament, for example regarding the establishment of a master's programme for teachers. The second case concerned the quality of higher education. The institution claimed impact on key concepts and positions in European (EUA, ENQA, EURASHE) and OECD policies in the area, such as 'quality culture' and 'the knowledge triangle', and on national systems for quality assessment in Norway and the Netherlands.

Three impact cases focused on the development of teacher education. UiS submitted a case on teachers as students, based on a project that studied teachers' attention to pupils' learning, with the aim of improving collaboration between teacher education and teaching practice schools. According to the institution, the impact primarily consisted of the introduction of 'lesson study' at several Norwegian institutions for teacher education. NTNU introduced teaching practice already at the beginning of the first semester of its teacher education programme, which, in combination with other measures, is expected to give the students a better understanding of practice that will help them with the theoretical parts of the programme. HiOA has run an internal project to spur the development of teaching across the whole of HiOA. Thirty-one development projects were carried out. The impact mainly concerned experimentation with new methods of teaching, learning and assessment, and knowledge-sharing across the institution.

HiL presented an impact case on restricted use of mobile telephones in two schools. The schools had imposed restrictions and been criticised in public debate. According to the institution, its research led to a better understanding of the two schools' actions, their voices were better heard, and one of the researchers was interviewed on Norwegian radio. HiOA served as the secretariat for a group reporting to the Ministry of Education and Research on the historic and contemporary roles of Norwegian teachers. The societal impact of this remains to be seen, since the Ministry was still processing the report at the time of the evaluation. HiB presented an impact case on teacher professionalism, arguing that the institution's leading researcher in the field was a member of several potentially influential advisory boards.

2.5.3.2 Curriculum, Assessment, Values and Inclusive/Intercultural Education

A number of impact cases covered various aspects of the curriculum and values. There were also a handful of cases mainly relating to disabilities and special education. Kindergartens and fostering are the focus in four impact cases. HiB presented an impact case on kindergartens as an arena for cultural formation. The researchers argued that kindergarten teachers should play a more dialogical role and that children should make a greater contribution to the curriculum, and they participated in the national and, to some extent international, public debate. The institution claimed impact on national and OECD policy documents. A research group at UiS studied the communication of values

between adults and children in kindergartens, with societal impact on practitioners in the seven participating kindergartens, according to the research group. The group presented its research findings at a Nordic policy conference in late 2016, and planned to produce a video for a wider audience. HiOA presented an impact case where children were studied as citizens with accompanying rights, and where the aim was to develop new methods that can facilitate children's participation. The institution claimed that the research sparked considerable interest in the issue of rights in kindergartens among professionals in the sector. Finally, UiA submitted a case on how to prevent bullying in kindergartens. The researchers mapped bullying both quantitatively to find out how widespread the phenomenon was, and through observation and interviews with children. The institution claimed that the project attracted extensive interest and was featured on the radio, in newspapers, on websites and television. Impact was claimed through increased awareness of the phenomenon of bullying in kindergartens among actors in the field and in kindergartens through the facilitation of meetings between staff and parents.

There were also two impact cases on bullying in schools. UiS presented a case of a school-wide initiative to prevent bullying, called Respect. The researchers developed the initiative, implemented it and, finally, evaluated the results. According to the institution, Respect was implemented in around 150 primary and secondary schools, thereby contributing to a large number of teachers' and school leaders' understanding of anti-bullying work and other measures to improve the learning environment. Impact was claimed on national policies, including greater awareness in the field about the importance of quality in the implementation of initiatives of this type. UiT submitted another impact case on bullying, based on a longitudinal and partly register-based study in which education researchers collaborated with medical researchers to understand the effect of bullying on individuals' well-being. The research is ongoing at the time of writing. Impact has so far mainly been achieved at the level of teachers and schools, through interaction where various aspects of bullying and bullying prevention are discussed.

UiT also presented an impact case on dropouts. The research focused on understanding why upper secondary school dropout rates are particularly high in Northern Norway, and what effect dropping out has on individuals' education and careers. Impact was claimed on relevant actors (schools, county authorities, youth groups, the police etc.) by including them as dialogue partners in the project, and thereby creating better opportunities for absorption of research and for preventive measures. A case submitted by NTNU also focused on dropouts, using a quantitative approach to study processes in the transition from lower to upper secondary school that lead to dropping out. According to the institution, the results were disseminated to policymakers in Norway and other Nordic countries, teachers and school leaders, and via radio, TV and newspapers. HSN claimed impact on so-called inclusive education, referring to teachers' reaching out to all students and meeting their personal needs. The Norwegian Directorate for Education and Training asked the researchers to coordinate the establishment of a web-based resource on the issue. HSN also submitted the only impact case that mainly focused on the integration of immigrants. It is connected to the national policy measure Competence for Diversity (*Kompetanse for mangfold*), and the impact consisted of capacity building in schools, kindergartens and the local and regional public sector. According to the institution, 600 teachers and representatives of municipalities and county authorities took part in the activities, and the researchers featured in the media.

Three impact cases primarily focused on special education. HiH claimed impact on the coordination of ordinary and special education in Lillehammer municipality, through the design and implementation of a system for quality assurance of special education. NLA submitted an impact case on the educational and psychological counselling service (usually referred to as PPT in Norwegian), a

mandatory institution in municipalities and county authorities. NLA claimed impact on inclusive practices in PPT services, schools and kindergartens in Western Norway through long-standing interaction that has generated capacity building in relation to this issue. NTNU also presented a case concerning PPT, on collaboration between schools and PPT services. The researchers implemented an analysis model in some schools and municipalities, which, according to the institution, had a positive impact on teachers' understanding of the issue and the roles of the different actors.

A number of the above-mentioned impact cases concerned knowledge and aids for handling functional disabilities. UiT presented a case concerning a digital test that researchers at the institution had developed to screen for literacy disorders. So far, the test has been used by the Norwegian Labour and Welfare Administration in Tromsø and it has also been offered to other public agencies in the region. Impact was also achieved among individuals – for example, a previously unemployed individual was equipped with a pen-reader to function in a new job as a warehouse worker. HiSF submitted a case about how research on ADHD could be treated with auditory noise (e.g. from a classroom or a vestibule) instead of medicines. The research showed that noisy environments made pupils with ADHD perform better on cognitive tests, while ordinary pupils performed worse under such conditions. Early results were disseminated, but the institution has not claimed impact as yet. UiO included two impact cases in this area, one that concerned working memory training and one on cochlear implants in small children, see Box 3 in Appendix F. The case concerning memory training was based on two widely cited scientific papers, in which the researchers concluded that working memory training was inefficient and only had effects on tasks that were very similar to those in which training was given. The results received much attention in worldwide media (The New Yorker, New York Times, Science, Nature Outlook etc.), and led to a consensus statement from Stanford University warning against using commercial products for memory training. The results were also used in a lawsuit in the USA against a company selling products in the field.

2.5.3.3 Subjects and didactics

Not surprisingly, a large number of impact cases concerned didactics and specific subjects. Mathematics is the most well-represented subject area. UiA promoted inquiry-based learning in mathematics in schools and kindergartens, see Box 4 in Appendix F. For a few years now, the university has also hosted the Centre for Research, Innovation and Coordination of Mathematics Teaching (MatRIC). At kindergarten level, both HiB and HiH presented impact cases relating to mathematics. In the Bergen case, researchers participated in a project that developed web-based modules for the professional development of kindergarten teachers in Sweden. The researchers claimed that their work had contributed to changes in kindergartens' planning and to the introduction of opportunities for mathematical learning in children's play. The researchers at Hedmark also focused on mathematical learning through children's play, working together with two teachers and four children at a local kindergarten during the period 2015–2016 to improve understanding of children's learning and the teaching. The impact was mainly achieved in the kindergarten in question, but, from December 2016, the two teachers led courses for other kindergarten teachers in Hamar municipality.

UiO administers the PISA and TIMSS assessments. After what was described as a negative 'shock' result for Norwegian pupils in mathematics in PISA and TIMSS in 2001 and 2003, the field attracted a lot of interest from policymakers and others, and studies and policy recommendations from the institution were frequently cited in government white papers. The university thus claimed significant impact on subsequent reforms, for example on national tests and other measures to improve the quality of education. Impact was also claimed on mathematics curriculum reforms in 2006 and 2012.

Researchers at UiS investigated teachers' mathematical knowledge, and claimed societal impact through influencing the national guidelines for mathematics in the teacher education programme, increasing the focus on mathematical knowledge for use in teaching. Also partly concerning mathematics, NTNU coordinated an EU project, S-TEAM, across 15 countries during the period 2009–2012 that focused on the dissemination of inquiry-based science teaching. According to the institution, societal impact was achieved, for example, through the Norwegian Directorate for Education and Training, which, based on S-TEAM, launched a three-year national pilot project for the professional development of science teachers. More than 50 schools participated in some way or another in the pilot project, which was not continued, however. At the local level, the institution also ran projects through the research group Mascil on inquiry-based learning in mathematics in primary and lower secondary schools in municipalities in the region. The research group behind the case claimed impact through stimulating a collective culture among teachers who focused on inquiry-based learning. Media attention helped to spread knowledge about the initiative nationally.

A handful of impact cases concerned language, reading and writing. During the last decade, 'early intervention' has been a core topic in Norwegian education policy. The Norwegian Reading Centre at UiS investigated how reading and writing difficulties could be prevented through early intervention; see Box 5 in Appendix F. Together with DMMH, NTNU ran an extensive research project between 2006 and 2010 on writing in schools and kindergartens. The university claimed that the project had an impact on the revised national curriculum in 2013, that it was a major reason for the establishment of the Norwegian Centre for Writing Education and Research in Trondheim in 2009, and that it had an impact on teaching in schools and several teacher education institutions. In another impact case, NTNU stated that the 'interdisciplinary writing research group' had an impact on elementary schools and on teacher training at the institution itself, and in Sweden. It also claimed impact on the whole NTNU organisation through the Centre for Communication in Professional Practices and Higher Education, and nationally on the recent green paper on education. UiO presented an impact case on reading based on secondary analyses of PISA data from 2000–2012. The university claimed that national tests in reading were introduced in 2004 as a result of the institution's research, and its lead researcher was called on to develop these tests. The same researcher was also part of the curriculum reforms in 2006. Other reports on the topic from the institution claimed that it also had an impact on education policies. HSN claimed impact on language development in kindergartens through two studies. The societal impact that was presented primarily concerned participating kindergartens, where researchers discussed with teachers how to develop language teaching. They had also been invited to other kindergartens and municipalities.

The impact cases also involved other didactical methods and subjects. HiH presented a case concerning outdoor learning in primary and secondary schools; see Box 6 in Appendix F. HSN claimed impact on the policy debate on practical-aesthetical subjects. The group 'Embodied Making and Learning' carried out research on the topic, based on which it argued for the cultural and meaning-making aspects of the arts. The institution claimed impact on policymakers in that regard, and identified a policy turn in a recent debate, as well as in a green paper on education. HiB included an impact case called 'Cultural rucksack', which is a national programme for arts and culture in all Norwegian primary and secondary schools that has been running since 2001. The Ministry of Culture asked the institution and the research institute Rokkan Centre to carry out a research project on the programme during the period 2010–2013. The researchers promoted the students' and teachers' perspectives on the programme, which, they claimed, had been largely neglected until then. The university identified a changed policy perspective in the programme after the study, and the researchers were also invited to write a background report for a green paper on cultural policy (NOU

2013:4). NTNU presented an impact case based on an ongoing project on religious education, although its societal impact (as opposed to impact on research) was still unclear.

Two didactics-related impact cases concerned learning (partly) outside the compulsory school system. Between 2007 and 2011, HiOA carried out a research project on vocational didactics. Key findings included didactic principles relating to continuous collaboration between vocational schools and enterprises. The institution claimed impact on the curricula of vocational teacher education institutions and participating vocational schools, and it also had an opportunity to influence the curriculum at the national level. In addition, the researchers also presented their findings on several occasions to stakeholders in the field of vocational education and training. Finally, NTNU presented an impact case that concerned driving schools, focusing on dialogue as a tool for learning good traffic behaviour. The institution argued that its research had an impact on the national curriculum for driver education by emphasising the importance of teaching quality as opposed to the number of compulsory elements. Parts of this research are also mandatory reading in the national driver instructor programme at Nord University.

2.5.3.4 Learning, teaching and technology

A handful of cases primarily concerned learning and/or teaching using technological aids. Researchers at UiO developed Talkwall (Samtavla), a microblogging tool for engaging students in classroom interaction; see Box 7 in Appendix F. In a current project, Digitalised Dialogues Across the Curriculum (DiDiAC), in cooperation with colleagues at University of Cambridge, the researchers investigated how the tool shaped interaction in the classroom. UiT presented two impact cases that concerned the use of technology in learning and teaching. The research group FIVE at the institution has for more than a decade conducted research on the use of video technology for supervision purposes in various professional contexts, and on how the quality of such supervision can be improved. According to the institution, a textbook from the group sells 5,000 copies annually across the Scandinavian countries. The institution also claimed that its model with nine ranked recommendations for qualitative advancement is widespread and widely used across Norway, and that a model for video-based team supervision has been used in Denmark during the last decade. The second impact case within this area appeared to be closely linked to – and possibly a sub-case of – the preceding one. It concerned developing the quality of practical supervision of future teachers in groups through the use of tablet PCs. The project had received positive attention from the Ministry of Education and Research, and it was mentioned over two pages in the latest report on the state of higher education in Norway. The researchers assumed that the project had ‘significant impact’ on supervisory practices etc. in both Norway and other Nordic countries.

HiOA participated as the Norwegian partner in a project funded by the Norwegian Agency for Development Cooperation (NORAD) primarily aimed at enhancing the capacity of two Nepalese universities to use virtual learning environments in open and distance learning in three master’s programmes. One part of the project consisted of building ICT labs etc. at the Nepalese universities. Among other things, the institution developed and ran courses to educate teachers and other staff to run the intended programmes. The first master’s student cohorts had recently graduated from the programmes and, according to the institution, they also used their ICT competence in their teaching at lower secondary schools in Nepal.

During the last decade, HSN has conducted research on the quality of language in educational textbooks. Among other things, the research concerned the choice and use of textbooks in schools, multicultural perspectives and the history of Norwegian textbooks. According to the institution, the researchers had been invited to a range of meetings with teachers, book editors and others. They

also collaborated with the Language Council of Norway, and with teachers in connection with research projects etc. The researchers had taken an initiative for policy-oriented discussions on how to further develop the language quality of textbooks.

2.5.3.5 Culture, society and labour market

Three impact cases mainly focused on the relevance of education in the labour market. NIFU submitted two of them. The first, which concerned vocational education and training (VET), was based on a number of research projects on the links between VET in schools and the labour market. NIFU showed that the links were weak in a number of ways. Impact was claimed on national policies; the research was widely cited, for example, in two white papers in the field and was used as a key reference in policy measures from the Norwegian Directorate for Education and Training. The leading researcher had also been in close dialogue with the Ministry of Education and Research on the issue. The second case from NIFU concerned the annual survey that NIFU distributes to all master's and selected bachelor's students in Norway six months after graduation. The survey has time series that extend back as far as the early 1970s, and it is a widely used source of information for policymakers and HEIs, is commonly referred to in national politics, white papers etc., and is used by HEIs in quality assurance, among other things. NIFU also presented a case on early leaving and completion of secondary school education; see Box 8 in Appendix F. UiT submitted an impact case on how to motivate students to choose science and technology based on competence in design and technology. It was unclear to what extent the underpinning research was disseminated or had had any impact, however.

Besides a case on driver education, mentioned above, there was only one impact case that was entirely outside the 'traditional education sector'. NTNU submitted an impact case on employee-driven innovation in organisations, including both private companies and the public sector. Impact was claimed primarily through a printed handbook on the topic, more than 2,000 copies and new editions of which have been printed since 2011, and which is available on the government's website.

HiH presented an impact case on 'international weeks' in primary schools, using a cultural studies approach. Impact was claimed at the local level, through teachers having changed their practices, at the national and international level through teachers becoming better informed about the issue, and at the policy level, through references and consultation of the researchers in connection with development of national curricula for teacher education. HiOA presented an impact case on capacity building in Sudan and South Sudan. It incorporated three different projects mainly focusing on gender equality issues. Impact was claimed mainly through the establishment of a master's programme in each of the two countries. HiOA also submitted a case on the use of libraries as arenas for developing literacy in primary schools characterised by linguistic diversity; see Box 9 in Appendix F.

DMMH presented an impact case on children's risky play. A decade-long research effort investigated the benefits of letting children engage in risky play, and how teachers can handle risks in play, arguing against the growing safety focus in the western world. Impact was claimed on the recent framework plan for kindergartens in Norway, in which risky play is included. It was also claimed that the research has been used at the EU level, and covered in media both in Norway and abroad. HiSF submitted an impact case on the effect of physical activity in primary schools. Fifty-seven schools participated in a trial in which half of the schools introduced more physical activity, which showed positive effects on school performance. The impact was claimed to be wide: a majority of the schools were reported to have continued (or introduced) the activities after the trial ended. The same institution also submitted an impact case called 'The learning region'. The case was based on a large

interdisciplinary research project that sought to explain why Sogn og Fjordane county, with one of Norway's lowest education and income levels, continuously performs on a par with the best regions in Norway in national exams. Experts in the project included education researchers, historians, mathematicians, management researchers, psychologists and linguists. Impact was claimed through the dissemination of the results of the project to policymakers and in the media, and because it led to changes in regional developmental plans in the four counties that were compared in the study.

2.5.4 Synthesis of impact cases

A majority of the impact cases focus on the dissemination of research to practitioners rather than actual societal impact. Dissemination refers to activities such as spreading research results through external collaboration, organising workshops and seminars, or presenting research at conferences. While these are all important activities, they do not actually constitute impact. Impact is when research has, for example, led to changed practices among users, or contributed to changed national policies or to new policy measures. In other words, an invitation to give an oral presentation of a report to the Ministry of Education and Research is dissemination, while the same report, when used to change policy and referred to as such in a white paper, is impact – although the two events may be closely related to each other. There are also a number of impact cases that appear to have been selected to showcase specific research projects rather than to describe impact or even dissemination.

The impact assessment was mainly based on the 70 impact cases submitted by the institutions and research groups, supplemented by information from interviews, surveys and background documentation. There was an imbalance between the institutions as regards the number of impact cases they submitted, which means that the analysis was not entirely valid as a measure of the impact of Norwegian education research. Impact cases were classified according to impact topic, education level and main geographical reach of the impact. The results showed that:

- Four (broad) topics stand out in terms of impact:
 - Pedagogical and didactical methods
 - Curricula or study programmes
 - Development of specific subjects
 - Management and administrative processes
- Primary and lower secondary education are the two most common education levels, covered in almost half of the impact cases, usually in the same cases. Upper secondary education and kindergartens were also covered in a significant number of cases. Only five of the 70 impact cases concerned higher education outside teacher education
- In terms of geography, a relatively small share of impact cases claimed to only have local or regional impact, while in two-thirds of the cases, impact was claimed to have been achieved nationally in Norway or abroad. A total of 17 out of 57 cases claimed impact outside Norway, although only four had their main impact abroad (in 13 of the 70 impact cases, the geographical reach of the impact could not be identified).

There is a high correspondence between areas where users want to see research contributions, and where they observe impact. Among locally oriented users, impact was mainly noted on issues that were related to pedagogy, didactics and the teaching profession. Nationally oriented users observed most impact in relation to their general scientific competence, followed by issues that concern the teaching profession. It was notable that, among nationally oriented users, the smallest gap between expectations and impact concerned general scientific competence, whereas locally and regionally

oriented users reported the largest gap for the same topic. The committee's interpretation is that this difference is related to the fact that nationally oriented users have notably larger resources to engage with research, and to the extent of direct interaction between researchers and users, which is considerably higher on the national level.

The interviews and comments in the web survey indicated that impact on learning environments and school leadership was important. There seemed to be high awareness among interviewees in schools and municipalities about the potential of a collective, reflective culture in schools. A number of interviewees observed impact in that respect. This impact was closely related to policy initiatives targeting these topics. Hence, the observed impact from the users' point of view reflects the impact cases submitted by the institutions relatively well, but the users were more focused on collective cultures among teachers and other 'soft' factors than the impact cases were. A tentative explanation for this is that the institutions were unable to document such impact. Another explanation is that the sample of users was too small and too biased to mirror the real situation.

For impact to be achieved in schools and kindergartens, it seems to be particularly important for education researchers to develop good relations with school leaders and municipal education managers. The user survey indicated that engagement with these two groups is important if an improved research base in schools and kindergartens is to be achieved. It is usually only school leaders who (may) have enough time to look into research and organise more ambitious initiatives to promote research and a more collective, reflective culture in schools. In municipalities of some size, there are typically some individuals with similar resources. School leaders and municipal education managers often also function as gatekeepers by representing their organisations in external settings, at which they receive information about research, among other things.

2.5.5 Summary

The level of interaction with stakeholders that have an interest in and/or are affected by education research must be regarded as relatively extensive throughout the Norwegian education system. The reported impact cases, as well as the investigation carried out as part of the user- and impact analysis, paint a picture of close interaction between researchers and practitioners. There is strong willingness among researchers to interact with kindergartens, schools or other relevant users, and there is interest in research on the users' part. It is evident that education research has an impact on policy and practice in counties, municipalities and kindergartens/schools. Much research also has an impact at the national level, and sometimes beyond, in other countries.

There are examples of research that has been relevant to political decision-making processes, and such impact has sometimes been crucial to the outcome. For instance, impact was presented on policy and practice in Norway and at the EU-level relating to playground safety standards. Certain modules were developed that have been used on a large scale in Norway and Sweden, and results have been used in policy evaluations, white papers and educational debates. Not all institutions contribute to impact of this kind; it is only a selection of larger institutions plus NIFU that can demonstrate such contributions, not just occasionally, but over time. Many key individuals representing the national public sector and interest organisations are relatively high consumers of education research. They also use research from other kinds of research environments (which are not part of this evaluation), for example economics or the social science research institutes. They often have a background in or near research institutions, and their organisations have comparatively good networks and resources for accessing and using research. National public agencies and the Ministry of Education and Research regularly commission research projects, which could be a natural arena for interaction with researchers.

Education research has an impact on teacher education. UiO, UiT and NTNU have established close collaboration with a number of what are referred to as 'university schools', which are used as arenas for research and partners in teacher training. Several other institutions also present impact on teacher training programmes, for instance UiS, HiOA, HiH and UiA. Some good examples are provided among the impact cases in the user and impact analysis.

The user and impact analysis contains an interesting section on what kind of research users would like to see more of. Many users call for more interdisciplinary collaboration, both to shed new light on education research issues and to better investigate phenomena of a more complex nature, for example dropping out. A number of users also want to see more comparative research across countries or municipalities, for example on the implementation of similar policy measures in two or more places.

Many users call for more research on educational practice in schools and in kindergartens. Research of this kind would serve as a natural arena between researchers and educational practitioners, since much of the empirical work would require fieldwork. Users especially call for research on the connection between teaching practice and learning outcomes.

Users with an interest in higher education point to the lack of research on the field overall.³⁸ They particularly call for research on the quality of higher education and point to a lack of such research internationally as well. Quite a few users call for research on the transition between education levels. Efficient transitions are expected to prevent dropping out and other problems, and early intervention is assumed to be an important solution. Users especially want to see research on how schools or HEIs, municipalities, county authorities, social services and other actors can collaborate efficiently.

A number of users call for more research on the links between education and working life. Users with an interest in vocational training point out that there is very little research on vocational training institutions and on adult education in Norway, particularly on qualitative aspects. A handful of users point to a shortage of research on the management and organisation of schools, kindergartens and HEIs. They point out that research on those organisations typically focuses on teachers and students, but largely overlooks the role of the leaders and other organisational issues. In addition, there is significant interest in evaluations and impact assessments. At the national level, users particularly mention interest in quantitative impact assessments, where researchers use control groups. At the local level, users are generally more oriented towards evaluations and other investigations of a quality assurance nature. As just one example, an interviewed kindergarten manager questioned the evidence for the impact of quality development plans in kindergartens; the manager believed that a lot of time is spent on such plans, but wondered what comes out of it, what is a good plan, and whether it actually have an impact on quality.

Some criticism was voiced about the nature of the interaction between researchers and users. Many called for more *interaction*. Too often, communication was perceived as one-way communication, from the researchers to the users. This may be related to the fact that many institutions and research groups submitted cases of dissemination and claimed them to be impact. Quite a lot of dissemination of research results probably takes place, but, while this is of course positive in itself, dissemination is often one-way communication by nature. Dissemination that includes real interaction with users is more likely to result in societal impact. It should be noted that more interaction requires more time,

³⁸ Not just in Norway but also in other countries, there have been complaints that education research targets pre-university education too much and that the needs/problems of higher education are too often neglected.

and more time requires more funding, or the reallocation of existing funding. It may also require reorganisation of how research is conducted.

2.5.5.1 Different degree of societal impact among the 16 institutions in UTDEVAL

In reviewing the information about societal impact as a whole, the committee's assessment is that six of the 16 institutions in UTDEVAL perform very well. This group is very heterogeneous; it contains two of the larger universities, two large university colleges, and two smaller and focused institutions: DMMH, HiB, HSN, NIFU, NTNU and UiO. There is a mix of strong local/regional impact and national and international impact – but none of these institutions has excellent impact across the board and in all dimensions. They all still have some room for improvement of one kind or another.

Another six institutions form an intermediate group with respect to societal impact. Their impact is mainly of a local and regional nature and it is often one or a few research groups that present clear impact, while other groups' impact is less convincing. There are examples of research groups whose impact consists of incidental collaborations with a few schools without wider national and international impact. Positive examples include impact related to acute problems in the community, such as dropping out, bullying etc. There are both universities and university colleges in this group: HiH, HiL, HiOA, UiA, UiS, UiT.

The remaining four institutions have a relatively low level of impact. Their research is not entirely without impact, but it is limited in comparison with the other institutions – or they have at least failed to present convincing evidence of impact to UTDEVAL. Hence, there is clearly room for improvement. The committee would suggest that this is very much a matter of recognising the issue and developing strategies for how to achieve societal impact, both at the institutional level and at research group level. This point also applies to institutions that have already been able to provide evidence of some impact.

3 Recommendations

In line with the mandate for the evaluation, the committee offered recommendations on ways to further develop the research field, as well as what should be prioritised in order to meet future challenges and needs. Such challenges include the three objectives as well as the six priority areas set out in the Norwegian government's Long-term Plan for Research and Higher Education (2015–2024). The three objectives are:

- To strengthen competitiveness and innovation capacity
- To solve major challenges to society
- To develop high-quality research groups

The six priority areas are:

- The oceans
- Climate change, the environment and environment-friendly energy
- Public sector renewal and higher quality, more efficient welfare, health and care services
- Enabling technologies
- An innovative, adaptable private sector
- World-class research groups

With reference to the three objectives, the committee is convinced that a (more) systemic approach is necessary. National research collaboration needs to be strengthened, and strong academic

environments and units in Norway need to join forces and establish collaboration with strong environments abroad. National research policy must underpin such efforts, not least through improved research structures and support for academic leadership. Such an approach and such initiatives are key components in order to strengthen competitiveness and innovation capacity.

While much education research may not be immediately and clearly linked to the six priority areas, the outcome and impact of education research is highly relevant to them indirectly. Education research has the potential to make significant long-term contributions to the attainment of the goals for the priority areas, as well as the broader objectives set by the government. Moreover, the organisation of education research, including its impact on teaching and society, has a broad long-term impact on the knowledge system as a whole. A functional and effective system for education research is thus a crucial component in realising national ambitions to strengthen knowledge capacity, within the priority areas and in others part of the knowledge system as well.

The committee arrived at the following recommendations:

Recommendations to institutions:

- Institutions need to further develop their collaboration in general, regionally, nationally and internationally. Project partnerships and co-authorship with researchers in other European countries should be increased. Research collaboration needs to move from individual research collaboration to long-term institutional collaboration, at research group and research area level.
- Strong research environments and units at the institutions need to further develop collaboration with equally strong, or stronger, environments and units at institutions abroad.
- More emphasis needs to be placed on the importance of strategic national and international collaboration with researchers and with users, that has an impact on society. International networks in particular need to be expanded. Institutions should consider whether to develop dual/joint PhD degrees with other universities, both in the Nordic region and in Europe and beyond. The different contexts different institutions operate in need to be taken into account.
- Institutions should establish clearer links between research groups and their institutional strategy. More cooperation is needed between research groups within and between institutions.
- More emphasis needs to be put on the importance of having sufficient time to conduct research, and understanding that carrying out high-quality research is time-consuming.
- Support for researchers and research groups should be based on past performance and the quality of the research. The selection of research groups, allocation of time for research, and other kinds of internal support mechanisms should be based on transparent quality criteria.
- More emphasis on research performance and output would be beneficial. Publications in English, and publications in high-ranked journals or prestigious publishers ought to be more highly valued in internal assessment activities. This does not mean a total shift from publication in Norwegian to publication in English. Knowledge-sharing is as important in Norwegian as in other languages.
- Institutions should develop their internal strategies for the recruitment of PhD candidates as well as junior researchers, and they should develop more sustained and optimal career opportunities for existing staff.

Recommendations addressed to the RCN:

- The RCN should develop and implement a systemic approach to the impact of research. A systemic approach should take into account how different actors and stakeholders in the system are interrelated, how interconnected parts contribute to the larger whole, and how underlying patterns can be addressed in order to achieve impact. The RCN should explore the possibility of

creating a knowledge infrastructure based on an understanding whereby different actors carry out different tasks, but at the same time find ways of linking these actors.

- The RCN should launch calls and ensure that funding is available for education research projects of an interdisciplinary and multidisciplinary nature.
- The RCN should launch calls and ensure that funding is available for research projects that target practice-oriented problems, that are of high relevance and require involvement by both academic researchers and users.
- The RCN should ensure that sufficient resources are available for future investments in new infrastructure and in the maintenance of existing infrastructure/databases.
- The RCN should launch a support programme for academic leadership and management, aimed at establishing and developing strong research structures, research environments and research systems.
- The RCN should launch research programmes to stimulate closer cooperation between education research and teacher education. More efforts need to put into strengthening the link between education research and teacher education. Several education research programmes have had a close link to teacher education, which has resulted in positive synergies.
- The RCN, together with institutions, should take steps to facilitate dialogue between policy, research, practice and the community to develop their understanding of the societal impact of education research, and to increase its visibility.
- The RCN, together with NOKUT, should carefully consider which institutions have sufficient expertise and capacity to undertake high quality doctoral training, and ensure that there are opportunities for partnership that can provide high-quality training and skills development.
- The RCN should consider whether institutions with relatively low performance, less capacity and without accreditation for providing doctoral training should take part in the national schools for doctoral training.
- The RCN should change its definition of users in the education sector. For example, a new definition of users might be as follows:

There are three categories of users:

- *Users in the education sector. The education sector includes both researchers and users. Users come from both public and private organisations. They include teachers, leaders and support staff in early childhood education, primary, secondary and higher education, municipalities, counties, professional organisations and other organisations that use the results of education research.*
- *Users in central government bodies and agencies. A small number of bodies, e.g. the Ministry of Education and Research and other relevant governmental bodies and agencies.*
- *Other users. This category contains other societal users such as the social partners, representatives of the voluntary sector and the general public.*

Users do not include academic research partners.

Appendix A. Mandate

The evaluation is to assess Norwegian education research with regard to the quality and capacity of research, strategic focus and cooperation, relevance and societal impact, and provide an overview of the position of Norwegian educational research in the international research landscape. The evaluation is to offer recommendations on ways to further develop the research field and what should be given priority to meet coming challenges and needs. The areas to be evaluated are described in items 1 – 3 below. For all these items, the evaluation must focus particular attention on the role of the Research Council and other key actors and on how the actors organise and coordinate their activities to maximise the use of resources and create synergy effects from interaction.

1. Quality and capacity of research

- Norway's contribution to the international research front
- The quality of Norwegian research groups in an international context
- Publication activity and citation analysis
- Recruitment needs and quality of researcher training
- Capacity and expertise in emerging research areas
- Access to data and infrastructure for storage and sharing of data
- Balance between basic research, applied research and commissioned research

2. Strategic focus and collaboration

- National research collaboration as well as bilateral, Nordic, European and international research collaboration
- Collaboration and division of labour between research institutions and between key actors in the R&D system for education
- Conditions that promote collaboration between Norwegian and international research actors, and instruments that may strengthen Nordic cooperation and cooperation with the EU and North America

3. Relevance and societal impact

- Interaction with actors that have an interest in and/or are affected by the research conducted, including the level of user-participation in research and user-driven research
- Relevance and benefit of the research for policy development, public administration, the professions and professional practice, e.g.:
 - i. Use of research in political decision-making processes
 - ii. Use of research in teacher education programmes
 - iii. Use of research in public administration of education at state and local levels, and at selected educational institutions
- Research dissemination, knowledge-sharing and communication

Appendix B. Institutional self-assessment template

Maximum 14 pages (not including attachments)

Guidelines:

The self-assessment shall be carried out at the research institutions at two levels:

1. **The research institution**
2. **Area of research**

In this evaluation the term 'research institution' refers to either an independent research institute or the faculty-level of a higher education institution. Area of research refers normally to the department-level of higher education institutions or research centres within higher education institutions. The research institution is responsible for the self-assessment at both level 1 and 2.

Large institutions with several research departments/centres should produce one self-assessment for each area of research. If so, the self-assessment for the research institution (level 1) should be included in the separate document for each area of research.

Be as concrete and precise as possible. Avoid vague descriptions without details or with little substance.

Submitting the self-assessments

The self-assessment, including all attachments, should be submitted as an editable pdf-document by email to “utdeval@forskningsradet.no” no later than **[16 December]**. By editable we mean that it is possible to copy and paste text from the document.

Please submit the self-assessment using the following name format in the title field of the e-mail: UTDEVAL self-assessment [name of institution] and if relevant [name of department/centre]

Format of the pdf-document

Documents should use Times New Roman 12-point font size and be structured as follows:

1. Front page with the name of the institution
2. List of contents
 - Use the chapter titles indicated in the outline on pp. 2-4 of these guidelines

3. Self-assessment of research institution (level 1)
 - Fact sheet including organisational map and list of funding sources (level 1)
 - Form X: Overview of study programmes
4. Area of research (level 2)
 - List of 10 most important publications
 - List of 5-10 most important collaboration partners in the education sector (users)
 - List of 10 most important dissemination and knowledge exchange results
5. The societal impact of the research – case studies
 - List of cases studies attached in separate pdf-documents
 - The names of the case study documents should be in the following format:
UTDEVAl[institution] and if relevant [name of department/centre]
case[number and short name]

1. The Research Institution **(indicative number of pages)**

1. Organisation & strategy **(3 pages)**

1. Describe how the institution is organised as of 01.01.2017 (refer to organisational map in the **fact sheet**). If relevant, you may expand on recent organisational changes in a separate item (see item 1.2)
2. Describe briefly the governing structure of the institution, focusing on the delegation of responsibilities for research, teaching and knowledge exchange within the organisation.
3. Present briefly the institution's strategic aims for the next 5-10 years. Include current prioritised areas, scientific goals and policies for future prioritisations.
4. Describe the efforts made by the institution to facilitate international research collaboration, collaboration across faculty divisions/units, and any collaboration with non-academic partners (private, public or 'third' sector).
5. For those who have been evaluated by the RCN within the last 15 years: Describe how the evaluations have been followed up at the institution. Institutions may refer to previous reporting to the RCN where relevant.
6. Give a **SWOT analysis** (Strengths, Weaknesses, Opportunities and Threats) of the institution using the enclosed template.

2. Organisational changes, if relevant **(1 page)**

Describe recent organisational changes, or planned reorganisations, and the reasons for these changes. Implications of ongoing merger processes for organisation, governing structures and strategic aims should be described.

3. Resources & infrastructure (1 page)

1. Give an overview of the resources of the institution by filling in the enclosed **fact sheet**.
2. Describe major research infrastructure (such as databases, archives, laboratories and scientific collections) maintained at the institution, and investments made in the last 5-10 years. Explain the role of research infrastructure in fostering quality research at the institution, and indicate the most important upgrades or new equipment needs, including sources of funding. Refer to [Norway's national strategy for research infrastructure 2012-2017](#) where relevant.

4. Gender, mobility and career paths (1 page)

1. Describe the institution's policy for gender equality, and how this is followed up.
2. Indicate how the institution is working to include gender perspectives in research more generally.
3. Describe the institution's policy for mobility and career paths. Include to what extent researchers are recruited from other institutions in Norway and internationally, PhD-students and postdocs spend time at research institutions abroad, and PhD-students are offered information about career opportunities in other sectors of the job market.
4. Has the institution implemented the European Charter & Code and been awarded 'HR Excellence in Research' status, or will the European Charter & Code be implemented soon? If not, please elaborate on the reason for this.

2. Area of research

In this evaluation, 'area of research', normally refers to the department-level at higher education institutions or centres within higher education institutions. Large institutions with several research departments/centres should produce one self-assessment for each area of research.

1. Staffing strategy and staff development (2 pages)

1. Describe plans for recruitment within the area of research.
2. Give an overview in **Form Y** of the number of positions that have been announced during the past three years (2013-2015) and the number of qualified applicants (all levels). Include to what extent researchers are recruited from other institutions in Norway and internationally.

3. Describe how the PhD training is organised and to what degree PhD students are included in the research activities.
4. Indicate the typical distribution of time between research, teaching and other activities for all academic positions, and highlight any mechanisms for strategic redistribution of tasks between staff.
5. Describe the policy for research leave/sabbatical leave for tenured staff if relevant.

2. Scientific quality (3 pages)

1. Give a brief overview of the research activities and research groups within the area with special emphasis on fields where researchers at the institution have made substantial contributions to the research community over the last 5-10 years. Provide a list of the ten most substantial publications in the period.
2. Describe the institution's strategy for developing the area, including strategies for scientific publication, and the role of external funding.
3. Describe how gender perspectives are integrated in the research within the area. Give some examples of projects and/or publications where gender perspectives take a central place (if relevant).
4. Identify a contact person for forthcoming mapping of gender research in Norway.

3. Interplay of research and teaching, if relevant (1 page)

1. Indicate the linkages between the areas of research (covered by this evaluation) and the study programmes offered by the institution. Use **Form X** to indicate the most relevant study programmes (based on the teaching activities of the researchers to be evaluated by the panel).
2. To what extent are students involved in staff research? Describe how and on what levels.
3. Indicate the main challenges for optimising the interplay of teaching and research at the institution and the measures taken to meet these challenges.
4. Elaborate on the linkages between the research area and teacher education (incl. continuous education) offered by the institution.

4. Societal relevance (2 pages)

1. Describe the relevance of the research within the area for societal challenges and the thematic priorities set out in Norwegian Government's Long-Term Plan for Research and Higher Education or other relevant policy documents. Use the attached overview of priority areas and sub-areas in the Long-Term Plan as a guideline.

2. Describe formal collaboration with different user-groups in the education sector and/or other sectors of society. Provide a list of the 5-10 most important collaborating partners in the education sector, of which 1-3 should be documented by impact cases.

3. Describe strategies for dissemination, user involvement and knowledge exchange within the area of research. Indicate the main obstacles to optimising knowledge exchange, and provide a list of the ten most substantial results in the period.

5. Impact case studies

Use the attached template for case studies to give examples of how research produced at the institution within this area has had an impact on society at large.

1. The research underpinning the reported impact cases must wholly, or in part, have been undertaken by researchers affiliated to the submitting institution. The contribution from these researchers to the reported impact should be significant. Both the research and the impact should have been produced within the last 10–15 years. Priority should be given to more recent examples.

2. Special circumstances may justify extending the given time interval when necessary to explain longer research traditions relevant to the reported impact. In such cases, great importance should be attached to documenting tangible impacts within the time frame provided. In all cases, the research underpinning the impact should be of a high international standing.

3. Each institution is invited to submit **one case per research area**. If desired, the institution may submit further cases for evaluation, limited upwards to **one case per ten researchers within the research area**.

6. Other information

1. Include any other information that you consider relevant for this evaluation, which is not covered in the previous sections.

Attachments

- Fact sheet, including organisational map and list of funding sources
- SWOT analysis
- Form X: Overview of research groups and study programmes
- Form Y: Number of positions that have been announced during the past three years (2013-2015) and the number of qualified applicants (all levels).
- List of 10 most important publications
- Form Z: Additional publications submitted to the panel
- Overview of long-term priorities in the Norwegian Government's Long-Term Plan for Research and Higher Education.

- List of 5-10 most important collaborating partners in the education sector (users)
- List of 10 most important dissemination and knowledge exchange results
- Template for case studies: The societal impact of the research

Appendix C. Research group self-assessment template

Research group self-assessment

Please fill in this template. Maximum 5 pages per group. Maximum 7 pages if a description of an impact case is included.

Organisation, leadership, strategy and resources

a. Give a brief outline of the establishment and the development of the research group.
b. Describe how the research group is being led and how the research is organised
c. Describe the scientific goals of the research group and the strategy for scientific publication and knowledge exchange, including cooperation with non-academic partners.
d. Explain how the group is contributing to the strategic goals of the host institution.
e. To what extent does the research group incorporate external funding as a factor in its strategic planning? And if relevant: Comment briefly on the support from the host institution for the development and running of externally funded projects.
f. To what extent does the host institution assist the research group in providing relevant research infrastructure such as databases, scientific collections or experimental facilities?

Research production and quality

a. Describe the research activities and the research profile of the group. Include a description of interdisciplinary activities if relevant.
b. Describe how the research group has contributed to the development of the state of the art within its field. <i>Examples of contributions may include (but are not limited to) theoretical and methodological developments, new empirical findings, interdisciplinary developments, production of datasets and scientific editions.</i>

Recruitment and training

a. Describe how PhD-students and postdoctoral fellows are recruited to the research group. What is the group's contribution to the training and mentoring of PhD-students and postdoctoral fellows?
b. Describe the international dimensions of the recruitment processes and the extent to which PhD students and postdoctoral fellows participate in international exchange programmes (including time spent at research institutions abroad).
c. To what extent do PhD-students take part in collaboration with partners outside of academia?

Networking

a. Describe how the research group engages in research collaboration in order to advance its strategy and produce high-quality, relevant research. <i>The dimensions of collaboration may include national/international cooperation, cooperation across faculty divisions, and cooperation with partners outside of academia (in the public sector, private businesses or NGOs).</i>

Impact on teaching

a. To what extent is the research of the group relevant for the study programmes at the host institution? Fill in the table below and add a comment if necessary				
	Not relevant	Relevant	Highly relevant	Time spent on teaching by group members (hours including preparation)
BA-level				
MA-level				
PhD-level				
Teacher education				
Comments				

Impact case study (optional)

Name of impact case: (max 10 characters)
Summary of the impact (maximum 100 words)
Description of the research underpinning the impact: (maximum 400 words.)

(include names of key researchers in the group. A time frame for when the research was carried out should also be included).
Details of the impact (maximum 400 words) (include a description of how the research has contributed to the impact on society).
References to the research (scientific publications)
References to sources to corroborate the claims made about the impact (publications, reports, media items, policy papers, etc.)
If relevant: External references (external users or others who have witnessed the impact and could be contacted to corroborate the claims made in the reported research cases).

Other information

a. Include any further information that you consider relevant for this evaluation.
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Appendix D. Research group assessment form

UTDEVAL Form for assessment of research groups

This form shall be filled in for each research group. Please see the other documents for:

- Evaluation questions to respond to for each dimension
- Information on which sources of information to use
- Information on which scale to use for scoring
- Other instructions on how to fill in the form

Name of institution and research group <i>(e.g. University of Oslo/UiO – Studies of Instruction across Subjects and Competences (SISCO))</i>	
Name of panel chair	
Name of first assessor	
Name of supplementary assessor (if applicable)	
Panel number	

Dimension	Assessment (text)	Score (1-5)
Organisation, leadership, strategy and resources		
Research production and quality		
Recruitment and training		
Networking		
Impact on teaching		Score (A-C)
Impact on society		Score (A-C)
Overall		
Feedback		

Appendix E. Institutional assessment form

UTDEVAL Form for assessment of education research

This form shall be filled in for each assessed institution.

Name of the institution	
Name of assessor	

Instruction	Assessment (text)	Score (1-5)
Make an overall assessment of the education research at the institution, as presented in the self-assessments of research areas submitted to UTDEVAL. In the case where an institution has more than one research area, thus more than one area self-assessment, you may distinguish between them and if relevant, you may produce one piece of text for each area. Else the format of your assessment is free. Pay particular attention to <u>scientific quality</u> and <u>staff strategy and development</u> .	Approximately 1,5-2 full pages of text – not to be read by the institution itself, only the evaluation committee.	Provide a consolidated score based on your qualitative assessment. In the case of vast variety between areas within one institution, you may explain this and give different scores per area.
Feedback to the institution. In the case where an institution has more than one research area, thus more than one area self-assessment, you may distinguish between them and if relevant, you may produce one piece of feedback text for each area. Else the format of your feedback is free.	1-3 full pages of text, depending on the size of the institution and the number of submitted self-assessments – to be read by the institution.	N/A

Appendix F. Impact cases per institution

<i>Institution</i>	<i>Number of impact cases from the institution</i>	<i>Number of impact cases from research groups at the institution</i>	<i>Total number of cases</i>
DMMH	1		1
HiB	4	2*	4
HiH	3	2	5
HiL	1		1
HiOA	5	2	7
HiSF	4		4
HiØ			0
HSN	5	3*	5
NIFU	1	2	3
NLA	2		2
NTNU	13**	2	14
UiA	2	1*	2
UiB			0
UiO	10		10
UiS	3	3***	5
UiT	5	2	7
All	59	19	70

Source: User survey and impact assessment of the Norwegian education research, Technopolis Group, drawing on institution and research group self-assessments. *Research group cases are identical to institution cases, and therefore only counted once. **Two cases (on the Lade project) are practically identical and therefore only counted once. ***One research group case is identical to an institution case, and therefore only counted once.

Appendix G. Nine examples of impact

Box 1. Impact case: The Lade project: A learning school for students' learning (Norwegian University of Science and Technology)

The project's overriding purpose was that researchers and teachers should work together to develop the school as a learning organisation for students' learning. Under this umbrella, the three sub-projects (one for grades 1–4, one for grades 5–7 and one for grades 8–10) took an action learning and research approach, consisting of close collaboration between teachers and researchers in one school, Lade school. Issues that teachers decided themselves formed the basis for each of the three sub-projects. They were selected on the basis of concrete, experienced problem areas affecting their teaching and school life. The teachers thus had ownership of the issues.

Conclusions from the Lade project included: (i) Close collaboration between teachers and researchers over time is beneficial because it deepens teachers' understanding of their role and promotes the development of new practices; (ii) the benefits of teachers deciding what topics to focus on; (iii) continuing education should be based on teachers' own experiences and needs; and (iv) education research can play a role in 'innovation' in both schools and the research field.

Impact was achieved at the national policy level, since the project provided detailed insight into the school as a learning organisation and showed what research could lead to and how it could be utilised. The Lade case has been widely spread in the education sphere in Norway.

Box 2. Impact case: School leadership: research and education (UiO)

Research on school leadership is a relatively young field in Norway, with the first studies taking place in the 1990s. An education programme for school leaders was established around the same time, in response to the needs of practitioners. From 2003, a full 120-ECT Master's programme in Education Leadership has been offered at UiO. The programme allows for extended dialogue between researchers and practitioners about research. It has opened new avenues for principals to ensure educational quality in their schools, and it inspires research that is of interest to national and international communities and authorities.

Impact is seen along three lines: (i) There is significant impact on society through the more than 200 practising school leaders taking studies in educational leadership. (ii) Regional and local educational authorities, the Norwegian Directorate of Education and Training, the Ministry of Education and Research, the Union of Education Norway, the Union of School Leaders, and the Association of Local and Regional Authorities (KS) frequently invite key researchers from UiO to give seminars and lectures. Through such engagements, research is made available and discussed, and references to the research are made in policy documents. (iii) Over the years, relations and networks with practitioners have been established. For example, at the time of the evaluation the researchers at the institution were collaborating with several schools and municipalities on the development of lower secondary schools. It is therefore reasonable to assume considerable impact on the national discourse, as well as the practice of educational leadership. For ten years, up until 2008, the researchers also supervised a national network of researchers that wished to discuss how to develop successful training programmes for school leaders. Representatives of the Directorate, KS, regional educational authorities, and the unions participated in this network.

Box 3. Impact case: HearLife (UiO)

This impact case describes the significance of joint educational and medical research exploring the effect of early cochlear implantation in children who are born deaf. The introduction of multi-channel cochlear implantation as a treatment for deafness resulted in a major debate both in Norway and internationally, and has led to a change in the field of deaf education during the last 20 years. The first major survey exploring the effect of cochlear implantation in Norwegian children was a PhD study at UiO. A series of studies led by the same researcher further investigated the issue. Other studies were carried out as well.

The direct societal impact was primarily seen in Norway and in the change in the medical treatment offered to children born with deafness. As the research showed that bilateral cochlear implantation before the age of 12 months offered the best possibility of developing a functional spoken language, Oslo University Hospital set implantation before 12 months as the preferred standard treatment for children born deaf. A new group of children born deaf thereby developed hearing and language at a faster rate than children implanted at a higher age. An increasing group of children demonstrated that they could acquire and maintain general language skills comparable to children with normal hearing. The findings, presented in 2010, were results that had rarely been seen before internationally. The growing group of children with cochlear implants who use spoken language has resulted in a decrease in special schools for the deaf. Today, Norway has only one such school left.

Box 4. Impact case: Mathematics Teaching Developmental Research (UiA)

For more than ten years, researchers at UiA have been engaged in development research projects on mathematics teaching, based on the principle of 'communities of inquiry' in which university researchers work alongside teachers and pre-school teachers to develop and inquire into learning, teaching and developmental processes. Pupils/students inquired into mathematics; teachers inquired into learning processes and their own teaching practices, while university researchers inquired into the developmental processes of students' learning, teachers' teaching and their own management of teachers' professional development.

Societal impact was claimed in four main ways: (i) The research findings related to kindergartens had attracted local, regional and national attention. The researchers had been awarded a prize by Agder Academy of Science and Letters for popularising science. The research led to a change in the approaches taken in kindergartens, in part through a book for kindergarten teachers used in teacher education at eight Norwegian HEIs. (ii) One of the researchers was invited to join an expert group under the auspices of the Ministry of Education and Research to produce a situation report on education in Norwegian schools and kindergartens, which contributed to a new national strategy for science and mathematics. (iii) Local schools requested the researchers to contribute to teaching and learning development within their own school communities. (iv) The university was awarded a Centre of Excellence in Higher Education with a national role for developing research and innovation in mathematics teaching in universities and university colleges. The centre, Centre for Research, Innovation and Coordination of Mathematics Teaching (MatRIC), runs a range of developmental projects in the field.

Box 5. Impact case: ‘Rapid Letters’ as element in early intervention (UiS)

The research project On Track investigated how reading and writing difficulties could be prevented through early intervention. One of the concepts introduced in the project was called Rapid Letters; it was a new rationale for introducing letters at a higher pace in first grade. The project originated in the following lines of research: i) a lack of documentation for introducing letters at a low pace in first grade, ii) the potential of digital adaptive learning technology, and iii) a lack of documentation of special needs interventions in Norway.

From the beginning of the 2014 school year, 1,000 children from 17 schools participated in the study. The project schools had to be willing to complete teaching the alphabet by Easter in the first grade. A lack of research supporting the Norwegian way of introducing the alphabet – which could take up to two school years – was one of the reasons for rapid introduction of the alphabet. Research indicated that faster introduction might be preferable, and that, if the alphabet was introduced at an early stage, children would have an opportunity to recognise more words and would have more time for repetition. Based on this rationale, strong readers would acquire the tools (letters) that they needed to move on sooner, while weaker pupils would get the repetition of the letters they needed.

When communicated to teachers through traditional media, social media and films, this rationale triggered a latent interest in teachers nationwide. The rationale for Rapid Letters also concurred with a growing practice of extensive writing early in first grade, a practice that requires knowledge of many/all letters to get started. In the RCN-funded Two Teachers project from 2016, about 150 participating schools were asked about their progress in the introduction of the alphabet. The answers showed a significant change from just a few years earlier: very many schools planned for faster progress. The questionnaire, which was answered by 132 schools, showed that 38 per cent planned to introduce two new letters per week, while 29 per cent planned to introduce all the letters already by December of the first school year.

Box 6. Impact case: Outdoor Learning (Uteskole) in Primary and Secondary School (HiH)

During the last 15 years, Outdoor Learning (Uteskole) has become a widespread educational approach in primary and secondary schools and in teacher education in the Scandinavian countries. The concept originated from research by a professor at HiH. There is broad consensus in Norway that learning ought to be based on a holistic educational perspective, where use of the body, senses and creativity must have a natural place together with the cognitive functions. Research shows that Outdoor Learning leads to interplay between practical and theoretical approaches in schools’ educational practice. Research suggests that the concept will stimulate pupils’ academic and social learning and well-being. There is strong empirical and theoretical evidence to suggest that Outdoor Learning is likely to reduce marginalisation and dropping out.

Outdoor Learning was integrated into ‘The Sustainable Backpack’ (DNS), which is a national school policy project run by the Ministry of Education and Research and the Ministry of Climate and Environment that was established in 2009. During these 15 years, 579 schools in Norway have received funding from DNS to plan and implement educational programmes where Outdoor Learning plays a key role. An evaluation by NIFU in 2014 confirmed that Outdoor Learning strengthened pupils’ motivation for learning.

Box 7. Impact case: Digitalised Dialogues with Talkwall (UiO)

During the last 10 years, a series of multi-disciplinary joint research projects between teachers and teacher trainers, combining educational research, subject didactics and computer science, have been carried out at UiO. They resulted in Digitalised Dialogues with Talkwall. Talkwall.net was developed specifically for the educational sector with the aim of helping teachers to engage their students in dialogues for learning, and to develop teaching practices that involve exploratory talk in the classroom. Talkwall activities were organised as sessions initiated by a teacher, and participants join the same session using a shared PIN code. The service is available on all modern browsers and devices, such as mobile phones, tablets and PCs. Talkwall is free of charge and completed and certified through test and demonstration in real classroom and school environments.

Building a research base in the field of technology-supported pedagogy was considered to be of strategic importance in both Norway and the UK. The partners had a key role in relation to impact: The Norwegian Digital Learning Arena (NDLA) for secondary schools promoted and tested Talkwall in their pilot schools, and integrated Talkwall with their Open Educational Resources portal. In close collaboration with the Centre for Professional Learning in Teacher Education (ProTed) and via the Faculty of Education at University of Cambridge, the Norwegian Centre for ICT in Education promoted Talkwall as well.

Box 8. Impact case: Early leaving and completion (NIFU)

The Early leaving and completion project followed nearly 10,000 upper secondary students for five years (2002–2007). The analyses identified four groups of factors influencing the outcome of upper secondary education: background (socio-economic status, gender etc.), school engagement (truancy, motivation etc.), initial level of knowledge (measured by grades at the end of compulsory education), and the educational context (county, branch of study etc.). Research showed that the single most important factor explaining the outcome of upper secondary education was the initial level of knowledge. The conclusion was that more attention should be paid to variation in the students' level of knowledge when commencing upper secondary education.

The project made two suggestions for action: (i) The 'Training Candidate' scheme should be used to a much greater extent, leading to vocational qualification at a lower level than full vocational qualification. By allowing struggling students to experience success, school completion rates will increase and dropping out can be prevented. (ii) The name of the qualification achieved through the Training Candidate scheme should be changed from 'Competence at a lower level' to 'Basic competence' to avoid stigmatisation.

The results of the project attracted great attention from national policymakers and they were cited in several white papers. The comprehensive scheme *Ny Giv* ('New Deal') introduced by the government in 2013 was largely based on the project's findings. The working group suggested introducing a new scheme to further develop the Training Candidate scheme, the Certificate of Practice scheme, which was implemented as an experimental scheme in 2007. National introduction of the scheme was announced in a white paper in 2013, and, in 2015, it was announced that the Education Act would be updated accordingly. The suggestion to change the terminology was also adopted and implemented in 2011.

Box 9. Impact case: Multiplicity, Empowerment, Citizenship: Inclusion through the use of the library as a learning arena (HiOA)

The aim of the project was to foster literacy development among linguistically diverse primary school pupils through voluntary reading of literature made available by librarians and chosen by pupils. The project ran as a partnership between teachers, school librarians, librarians at public libraries and researchers. Two public schools, one public library and two teacher education institutions participated.

The project had impact through school library development, new networks, increased reading among the pupils and professional development among all the partners involved. According to the researchers, the project resulted in substantial qualitative changes in educational work on reading literacy at the two schools. The school library as a learning arena was integrated into plans and educational programmes at both schools. Both schools had invested strongly in their libraries, in terms of resources and infrastructure, as well as staff. The work continued after the project period ended.



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Publisher:

© The Research Council of Norway

Cover design: Melkeveien Desingkontor

Photo: Shutterstock

Oslo, March 2018

ISBN 978-82-12-03674-1 (pdf)