EVALUATION OF EDUCATION FOR TOMORROW PHASE 1

Evaluation Report

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Executive Summary with Key Findings and Recommendations

This report presents the findings of Oxford Research's evaluation of NordForsk's Education for Tomorrow Programme Phase 1. The evaluation was undertaken during the period March-August 2019. The conclusions and recommendations are based on the triangulated findings from in-depth interviews, document studies and bibliometric and network analyses. The key findings of the evaluation are:

1. **The programme's main impact is scientific**. The projects and the Nordic Centre of Excellence (NCoE), financed by the programme, have produced a large number of scientific publications, achieving a high number of citations and international co-authorships. The programme has contributed to the sustainability of educational science in the Nordic countries by training and supporting PhD students and junior researchers.

2. **The programme's societal impact is limited.** While the projects and NCoE have worked to communicate research findings, Oxford Research considers the programme's societal impact to be limited.

3. **The programme's Nordic added value is high.** The programme has contributed to strengthening educational research in each Nordic country. There is, however, less evidence that the programme has strengthened the Nordic region's position in educational research.

4. **A gender perspective permeates the programme.** Two gender perspectives have been relevant. First, the majority of the research carried out within the programme includes a gender perspective, reflecting what is common within the field. Second, there was a gender balance among project and team leaders. Given that education is a female-dominated field, the projects also strove to promote male researchers.

Oxford Research suggests that NordForsk considers the following points when designing possible future research efforts within educational research:

1. **Determine the focus of the programme and steer actively towards it.** For future programmes, we suggest that NordForsk finds a focus where theory-oriented and practice/policy-oriented research converge, allowing that focus to guide NordForsk's priorities.

2. **Clarify the concept of Nordic added value.** For future programmes, we suggest that NordForsk clarifies which concept of Nordic added value the programme emphasises. This includes considering what it means to contribute to "an excellent Nordic research environment", necessary support from the programme level, and creating sustainability for Nordic added values.

3. **Articulate how the results from the programme will feed back to stakeholders outside academia.** For future programmes, we recommend that NordForsk defines how a feedback loop to the Nordic Council of Ministers for Education and Research (or another relevant group) could be established during the programme. Already at the start of a potential future programme, it should be clear *how* the funded research will feed back to practice and policy at different levels in the Nordic countries and which expectations Nordforsk has of the projects in this regard.

4. **Strengthen coherence within future programmes.** For future programmes, we suggest that NordForsk considers (1) the need for an operative leadership function at the programme level; (2) limiting the programme's thematic scope; and/or (3) allocating more funding and resources to activities aimed at achieving Nordic and thematic synergies within the programme.

5. **Improve consistency and coherence in reporting.** We suggest that NordForsk reviews and improves its reporting templates, including the guidelines used for reporting, to better be able to monitor, follow up, measure and evaluate potential future programmes.

6. **Retain flexibility in the implementation of future programmes.** A success factor in the implementation of the programme has been the flexibility to adapt and steer the programme to align with its objectives. Oxford Research recommends that NordForsk retains this flexibility in potential future programmes.

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Introduction

In this chapter we present the background, purpose and aims of the evaluation.

BACKGROUND

The Education for Tomorrow Programme is a Nordic education initiative, co-funded by the national research funding organisations in all Nordic countries and administered by NordForsk. The first phase of the programme (Phase 1, 2013-2018)[1] had an approximate budget of NOK 75 million. As per **Table 1**, the programme included one Nordic Centre of Excellence (NCoE), five large-scale interdisciplinary research projects, and one sub-project on nutrition, learning and health. In addition, three small-scale projects were launched to develop cross-cutting themes and issues that emerged from the large-scale projects. The programme also included five spin-off projects aimed at enhancing the end-user relevance of the research.

Table 1. List of large-scale research projects, sub-projects and NCoE included in the programme.

Project Title	Granted Amount (NOK)	Project Period
Values education in Nordic preschools: Basis of education for tomorrow (ValuEd)	6 999 608	2013-2015
Learning Spaces of Inclusion and Social Justice: Success Stories from Immigrant Students and School Communities in Four Nordic Countries (LSP)	6 906 773	2013-2015
The Future of Vocational Education Learning from the Nordic Countries (NorVET)	6 966 950	2013-2016
Nordic Centre of Excellence Justice through Education (JustEd)	24 984 000	2013-2017
Skill acquisition, skill loss, and age. A comparative study of Cognitive Foundation Skills (CFS) in Denmark, Finland, Norway, and Sweden (SASLA)	6 695 110	2013-2015
Nordic Fields of Higher Education (NFHE)	6 994 672	2013-2015
Prospects for promoting health and performance by school meals in Nordic countries (ProMeal)	3 975 914	2013-2014

The primary aim of Education for Tomorrow Programme Phase 1 was to generate new knowledge about the Nordic educational systems, to better equip them in meeting the current and future needs of society. This involved bringing research out into the wider community by disseminating key findings to policy makers and practitioners in the education sector. The programme's explicitly stated objectives were to:

1. Strengthen the Nordic region's position in educational research within and outside of Europe.

[1] Hereafter referred to as *the programme*.

2. Contribute to a knowledge-based policy and practice for the educational sector in the Nordic countries by analysing issues of significant importance and relevance to the sector itself, policymakers and researchers.
3. Disseminate the results to a wide array of stakeholders in the Nordic region and internationally.

In June 2016, the NordForsk board approved an expansion of the programme (Phase 2), set to run from 2017 to 2023. The expansion continues to build upon the overall objectives of Phase 1 and has a dual focus: first, on the application of research-based knowledge in practice in genuinely collaborative projects; second, on the role of teacher education for research-based development of practice.

PURPOSE AND AIMS OF THE EVALUATION

In March 2019, Oxford Research was commissioned by NordForsk to evaluate Phase 1 of the programme. The objectives of the evaluation were (1) to assess how the funded research had contributed to fulfilling the programme objectives, and (2) to offer recommendations on the development of possible future Nordic research efforts within educational research. The evaluation has emphasised the assessment of the scientific and societal impact of the funded research as well as the Nordic added value achieved by the programme. As such, the evaluation has:

1. Evaluated and assessed the scientific and societal impact of the programme. This has included synergies between projects, and the organisation of an excellent Nordic research environment for educational research.
2. Evaluated and described the methods used to communicate and disseminate research results for the programme to contribute to knowledge-based policy and practice within the Nordic education sector.
3. Assessed the Nordic added value of the programme, highlighting best practices of added value in research collaborations.
4. Mapped measures undertaken to reach or maintain gender balance and provided a short description of how a gender perspective on research topics has been implemented.

The evaluation has involved both the programme and the project levels and assessed the aggregated impact of activities at both levels. The evaluation also paid special attention to the wider impact of the programme on a policy, professional and societal level. As part of this, the evaluation studied the methods used for, and results of, dissemination and communication activities at both programme and the project levels.

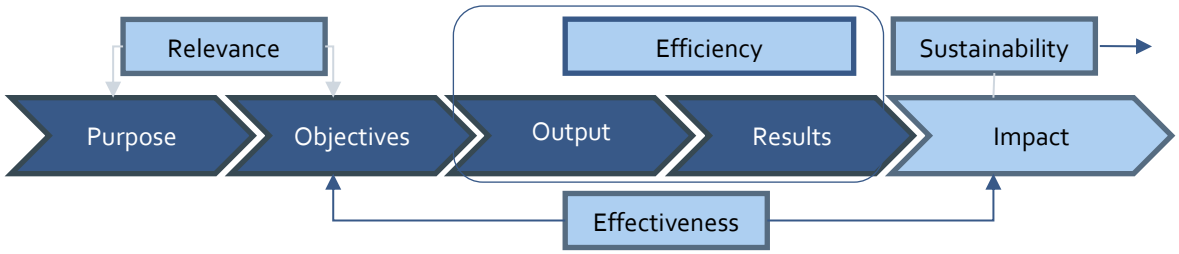
Methodology and Data Sources

In this chapter we present the methodological approach and the data sources that form the empirical basis of the evaluation.

METHODOLOGICAL APPROACH

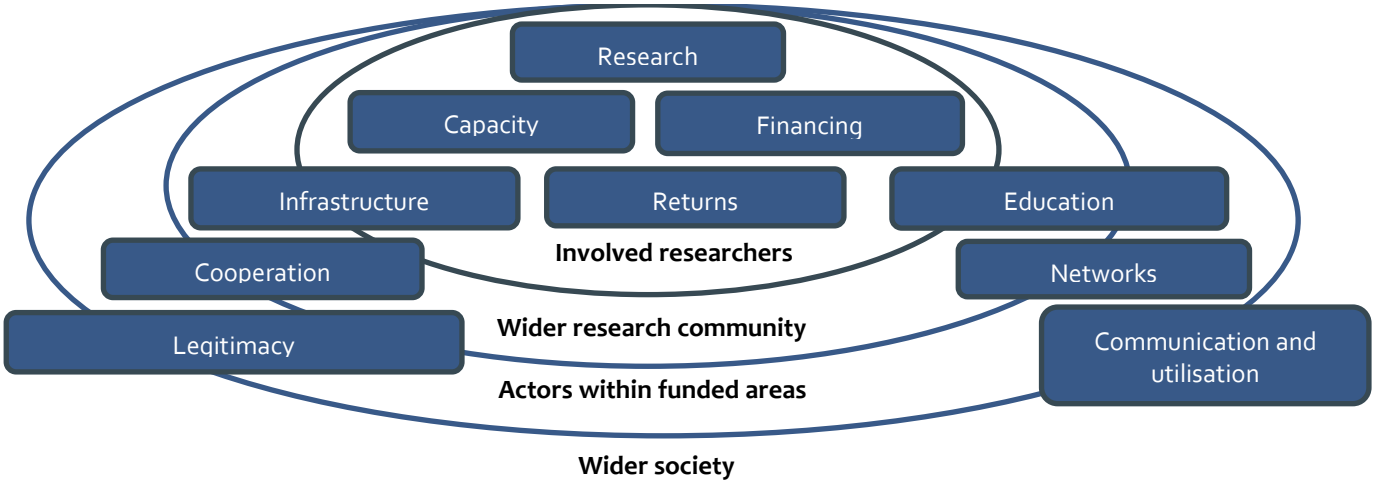
To evaluate the Education for Tomorrow Programme, Oxford Research has adopted a combination of theoretical concepts. On a fundamental level, the evaluation follows the so-called OECD/DAC evaluation criteria. This means that we—from the formulation of interview questions to the analysis and report structure—have been guided by a selection of concepts from the OECD/DAC evaluation criteria. The evaluation examines the criteria highlighted in a light blue in **Figure 1**, i.e. the programme's relevance, effectiveness, efficiency, sustainability, and effects and impact.

Figure 1. OECD/DAC Criteria for Evaluating Development Assistance. Illustration by Oxford Research.



To further develop the relevance of the concepts given by the OECD/DAC evaluation criteria, we have also found inspiration from a framework evaluating research funding, which is based on the concepts of Research Capacity Building (RCB), based on work by Cooke,[2] and Sequences of Impact (SOI) inspired by work of Perez Vico[3] (**Figure 2**). This is a framework that Oxford Research has used in previous evaluations of research programmes within other fields of research. While RCB examines the long-term impact of research funding in establishing permanently increased research capacity within the research community, SOI traces the wider societal impact of research activities funded by the programme.

Figure 2. Framework for investigation the sequences of impact of research funding. Developed by Oxford Research.



The combined framework of RCB and SOI, applied in combination with the OECD/DAC evaluation criteria, has provided a foundation for assessing the scientific and societal impact of the

[2] Cooke, Jo. 2005. A framework to evaluate research capacity building in health care. *BMC Family Practice* 6-44

[3] Vico, Perez. 2014. An in-depth study of direct and indirect impacts from the research of a physics professor. *Science and Public Policy* 41:701–719.

programme. It has also enabled us to track the methods used for, and assess the output of, communication and dissemination activities, as well as guides the reader in his or her understanding of the evaluation results. The definition used for Impact, as presented in the table, is inspired by a combined framework for RCB/SOI.

Table 2 provides the definitions used for each criterion when evaluating the programme.

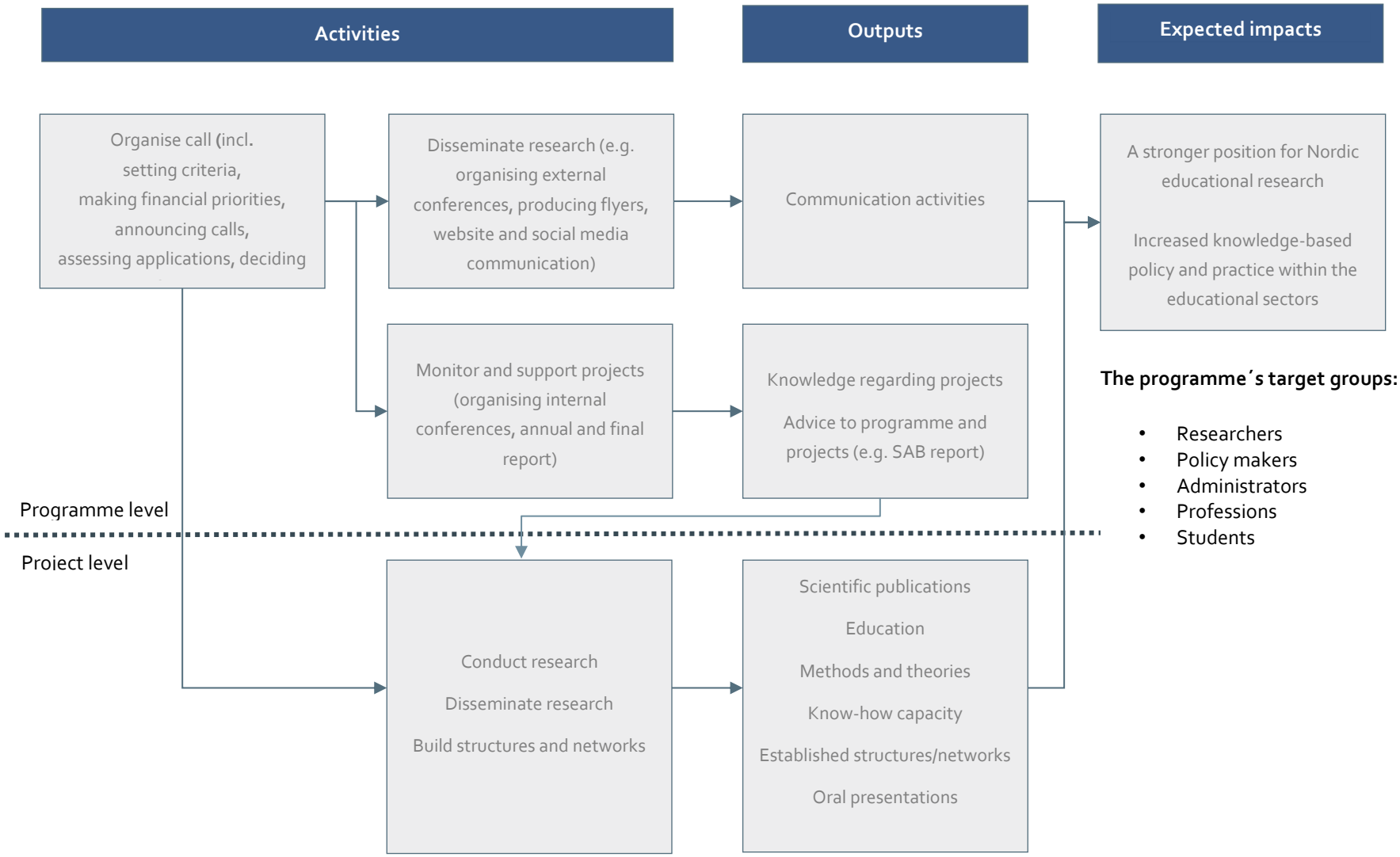
Table 2. OECD/DAC criteria and definitions with guidance from the RCB/SOI framework.

Criteria	Definition
Relevance	Measures the extent to which the programme is aligned with the priorities and policies of the target group, recipients and donors. Relevance also examines how the programme's objectives are structured, as well as its scientific and societal relevance in a Nordic context.
Effectiveness	Measures the extent to which programme has attained its objectives and major factors influencing the achievement or non-achievement of these objectives.
Efficiency	Measures the qualitative and quantitative outputs and results in relation to the inputs. Efficiency also examines whether the programme was implemented in the most efficient way, and which synergies have been created within the programme.
Impact	Measures the scientific and societal effects produced by the programme, directly or indirectly. Scientific impact is defined as produced research, established research infrastructure, formal and informal cooperation and/or other research activities that build capacity within the research community. Societal impact is defined as documented changes of practice, policy and education and the methods used to communicate research to stakeholder groups outside academia.
Sustainability	Measures the extent to which the benefits of the project continued after funding from the programme ceased. For example, by contributing to further research, new formal or informal research collaboration and the factors influencing the sustainability of the programme.

The logic of the Education for Tomorrow Programme

By deploying the combined framework of RCB and SOI in conjunction with the OECD/DAC criteria, a programme logic for the programme was developed in the evaluation's inception phase. The programme logic is based on information from a meeting with representatives of NordForsk, studies of programme documents and interviews conducted with five members of the Programme Committee. The purpose of the programme logic is to present the theoretical basis for logical connections between programme activities, outputs and the expected impact. The programme logic distinguishes between programme and project level activities, and has been served as a reference point when analysing the implementation and impact of the programme (see: **Evaluation Results**).

Figure 3. Programme logic for the Education for Tomorrow Programme Phase 1.



DATA SOURCES

The evaluation has entailed a mixed-method approach, combining document studies, in-depth interviews, and a bibliometric and network analysis. The following sections present the methods and data sources used and discuss delimitations in the data and analysis.

Document studies

The document studies have primarily addressed evaluation criteria such as relevance, effectiveness and sustainability. Relevant data and information were obtained through studies of programme and project documentation. All the documentation from the programme was reviewed in the inception phase of the evaluation, with the following key sources examined in detail:

- Tables on the funding granted in the programme. These were used to prioritise the reading of other documents based on the principle that more funding equalled more thorough examination.
- Final reports of the five large-scale research projects and the NCoE.
- Final reports of the Scientific Advisory Board (SAB).

The documents mainly contained information regarding:

- **Research mobility**: Site of work, purpose of visit, duration of visit, number of visits.
- **Output and dissemination**: Number and types of publications, including outreach to the public.
- **Meetings and networking**: Number of workshops with invited speakers, conferences and other academic events organised by the research project.
- **Staffing of the research project throughout the project period**: Number of staff per academic category, number of person years funded by the project.

The annual SAB reports contained valuable reflections on the progress of the research projects and the NCoE.

Some delimitations have influenced the document studies. First, they did not cover all written documentation produced by the programme. We prioritised including key documents as well as documents produced in the latter stages of the programme in our analysis. Second, the reporting of the sub-project was only covered briefly since the documentation was both received at a late stage of the evaluation and lacked coherence with the reporting of other projects. Third, a general lack of harmonisation in templates and reporting somewhat impeded our reading of the reports and ability to draw conclusions.

In-depth interviews

To complement the document studies, Oxford Research conducted an in-depth interview study with NordForsk, members of the Programme Committee, actors who had received funding from the programme, and the chair of the SAB. The primary purpose of the interview study was to obtain a more profound understanding of complex information. The interviews with the representatives of NordForsk and the SAB were also used to validate initial evaluation results.

The interviews with project leaders and representatives of the NCoE relied on a semi-structured interview guide. A total of 21 interviews were conducted in March, April and May 2019.

Bibliometrics and network analyses

To analyse the scientific impact of the programme, Oxford Research carried out a bibliometric and network analysis. Using *Harzing's Publish or Perish,*[4] we constructed at dataset consisting of every recorded publication from the five large-scale projects and the NCoE.[5] We extracted the full range of variables, including citation count, authors, publication year, cites per year and cites per author. We also added a categorical variable for the project name and institutional affiliation of each author. The latter was done by individual Google searches for publication titles, and the information was gathered from various research portals, as well as publisher's and university web sites.

There are significant challenges in applying bibliometric methods to the fields of educational sciences. The publishing practices in educational sciences have traditionally been less amenable to bibliometric techniques.[6] At present, there are few benefits in using journal rankings, due to the overall poor quality of the rankings.[7] The low coverage of educational science articles in Scopus and Web of Science databases also posed a significant challenge to the bibliometric analysis. Non-English language and non-international journals have a lower probability of being included in the databases. This is also the case for book chapters and monographs, which are preferred publication types in educational research.

To overcome these difficulties, the bibliometric analysis was instead conducted using Google Scholar, which offers a much broader coverage of publications. The low-threshold inclusion practice of Google Scholar does, however, lead to a higher prevalence of double entries and stray citations,[8] which required manual inspection and removal. Furthermore, Google Scholar lacks field, discipline and document type indexing, and obtaining normalised citation counts would thus have required extensive manual involvement in generating and validating the data. This was deemed too labour-intensive to be feasible for this evaluation, given the time and budget constraints. When describing the programme's scientific impact, the analysis is therefore limited to within-programme comparisons.

DELIMITATIONS

This evaluation has three main delimitations. These relate to the design and resources of the evaluation, the inherent nature of the field of educational sciences, and to how the reporting and documentation structure for the programme was implemented.

[4] https://harzing.com/resources/publish-or-perish

[5] ProMeal is not included in the bibliometric analysis as publication lists were not available at the time of analysis.

[6] Nedenhof, Anton J. 2006. Bibliometric monitoring of research performance in the Social Sciences and the Humanities: A review. In: *Scientometrics*, 66(1), 81–100.

[7] Diem & Wolter. 2013. p. 4.

[8] Stray citations are citations that have not been aggregated under the master record. They are generally the result of misspelling of an author's name, the title of the publication or the journal, or listing of the wrong volume, issue or page numbers. They can also occur through Google Scholar parsing errors.

First, the present evaluation is not a comprehensive impact assessment of the programme's scientific and societal impact. Rather, the evaluation covers a wide range of issues such as relevance, efficiency, effectiveness and sustainability, and how to use experiences from the programme's implementation to improve the design of future programmes. Impact assessments are limited to measuring the extent to which and how an intervention has achieved its intended impact.[9] Undertaking both an evaluation and a comprehensive impact assessment would require extensive data collection with target groups affected by the programme, which was not possible with the given resources.

Second, educational research projects are often funded by multiple national and international sources. The nature of the field's funding structure has impeded our ability to determine the delimitations for the funded research and establish direct links between funding, scientific output and other research activities. In addition, it is common for publications to continue to be published after funding has ceased, meaning that it may be too early to accurately measure the overall scientific and societal impact.

Third, many interviewees reported to have experienced difficulties in understanding the programme's reporting template, resulting in publication lists that were not consistent across projects within the programme nor fully representative of the actual scientific output. Consequently, there is a lack of clarity as to whether all listed publications can be attributed to the work funded by the programme. This issue was also highlighted by the SAB in its 2016 report.

Overall, the delimitations have limited our ability to fully respond to each research question as determined at the outset of this the evaluation.

Evaluation Results

In this chapter we present the empirical results of the evaluation. The chapter is based on Oxford Research's triangulated findings from the document studies, in-depth interviews and bibliometric and network analyses. The chapter focuses on the five criteria in the OECD/DAC framework: relevance, effectiveness, scientific and societal impact, efficiency and sustainability, which are assessed in relation to the programme logic presented in **Figure 3**.

THE PROGRAMME IS SCIENTIFICALLY AND SOCIALLY RELEVANT TO THE NORDICS

Oxford Research considers **the programme to be highly relevant on several levels**. The programme has a particularly high level of scientific relevance across all Nordic countries, albeit its relevance has varied between countries. Given the political salience of education in all Nordic countries, the programme also has a high level of societal relevance. Finally, the programme is relevant in terms of its inclusion of gender aspects.

[9] https://www.oecd.org/sti/inno/What-is-impact-assessment-OECDImpact.pdf

The programme is scientifically relevant

The level of interest in the programme from the Nordic research community implies that the Nordic research community within educational sciences considers the EFT to be a scientifically relevant research programme. Following their call, NordForsk received a total of 73 applications – 57 for research projects and 16 for an NCoE. The applications came from a total number of 20 research institutes in all the Nordics and had more than 4000 involved researchers. The hit rate for applications that were granted funding was 9 per cent for large-scale research projects and 6 per cent for the NCoE. In addition to implying scientific relevance, the high application rate can also be an indication of NordForsk's success in communicating the programme and/or its thematical and scientific scope.

Varied relevance in different national contexts

However, the varying number of applications between the Nordic countries indicates that the national research communities hold varied views concerning the relevance of the programme. The number of applications differed to some extent amongst participating countries. Finland was slightly overrepresented, accounting for 34 per cent of all research applications, with the University of Helsinki accounting for 17 per cent. On the opposite end of the scale, relative to population size, the interest in the programme in terms of number of researchers involved in applications was lower in Denmark than other countries.

Education is a prioritised area in the Nordic countries

Given the political salience of education in all Nordic countries, the programme's thematic focuses hold a high level of societal relevance in a Nordic context. Education has long been prominent on the political agenda of all Nordic countries, which consistently rank highly in international comparisons of public expenditure on education as share of national GDP.[10] Interviewees widely agreed that the Nordic education systems share a common value base, consisting of principles such as equal access to quality education, equality and equity – the so-called Nordic model. Nevertheless, there are also differences between the countries, which makes comparative analysis particularly relevant. The most notable differences between the Nordics are found in the designs and outcomes of the national education systems, e.g. relating to the degree of privatisation or results in different international rankings such as PISA.

Facing a different gender challenge

Gender aspects are important, and often ubiquitous, factors in Nordic educational sciences. Gender is relevant to educational sciences in two ways: first, in relation to the content of the research being conducted, and second, in relation to the gender of those conducting the research. All interviewees have highlighted gender aspects as being particularly relevant to the content of educational research. Most of the research produced within the programme includes gender as one of the main variables, in conjunction with other social variables. In terms of those conducting the research, educational sciences face a gender challenge contrary to many other areas of research. Namely that men are largely underrepresented, creating a need to promote male researchers. This imbalance does not seem to be reflected in the programme, where 6 out of 14 project and team

[10] OECD. 2019. *Public spending on education* (indicator). doi: 10.1787/f99b45d0-en (Accessed on 10 May 2019).

leaders were male. Of the funded projects, only the NCoE was required to comment on gender aspects in their final report. The report concluded that a majority of NCoE researchers had been female and that more than 100 peer-reviewed articles, book chapters and books produced within its context included gender as one of the main research areas.

THE PROGRAMME'S MAIN IMPACT IS SCIENTIFIC

From an overarching perspective, Oxford Research assesses that **the programme's main impact is scientific**. We have found that the programme has contributed to research capacity building by producing a substantial number of scientific publications, facilitating research collaboration and dissemination as evidenced both by the number of co-written articles, and how research produced by funded projects is being used by other researchers. In addition to data collection and analysis, the programme has supported a wide range of research activities, including PhD training, research mobility and theory development. Taken together, **the programme has been effective** in achieving results in line with the intended impact of achieving a strengthened position for Nordic educational research.

A substantial number of scientific publications have been achieved

When allocating funding, the Programme Committee prioritised research-time or other research-related activities, which comprised 84 per cent of the programme's total budget. This is reflected in the majority of the programme's outputs being scientific. The programme's primary results thus consist of research publications, presentations at scientific conferences, training of PhD students, and development of theory and methodology.

A total of 267 written publications[11] have been recorded as a direct output of the programme. The final project reports list three categories of scientific publications that have been achieved as a direct result:[12]

- **Peer-reviewed scientific publications**: 157, of which 15 per cent are open access
- **Non peer-reviewed publications**: 59, of which 15 per cent are open access
- **Reports**: 20

In addition, the programme has contributed to a considerable number of publications where other funding has also been involved. These are listed in the final project reports:

- **Peer-reviewed scientific publications**: 1041, of which 15 per cent are open access[13]
- **Non peer-reviewed publications**: 248, of which 20 per cent are open access

[11] Excluding ProMeal, for which the evaluation did not have access to reporting.

[12] The projects have interpreted the reporting criteria differently. E.g. the project LSP does not distinguish between direct and indirect output in its final report. The project reports 50 peer-reviewed scientific publications as an output funded by the research project but notes that "some … publications from 2013/14 are only partly based on the LSP data".

[13] 822 of the total output of 884 peer-reviewed scientific publications were produced by JustEd. In its reporting, JustEd has notes that direct results should be interpreted as publications by PhD students receiving funding from the programme.

- **Reports**: 54

The total number of publications, accounting for both direct and indirect output of the programme, amounts to over 1400 written publications.

The research produced by the funded projects is used by other researchers

The bibliometric analysis shows that the scientific output of the programme has been widely used in the research community. However, there are notable differences between the projects, with JustEd and ValuEd standing out in regard to the scientific impact achieved.

The total number of citations received by the 343 publications registered to the programme and indexed in Google Scholar is 3585.[14] The average number of citations per publication is 10.48, with a median of 5 citations. The highest number of citations received by any one publication is 118. The author with the most citations has 275 in total.

When breaking down the numbers to observe the differences between projects, the NCoE, JustEd (13.7 per cent), and ValuEd (13.4 per cent) have the highest average citation count per publication, approximately twice that of the next tier consisting of NordVET (7.8 per cent) and NFHE (6.8 per cent). Learning Spaces (4.3 per cent) and SASLA (3.2 per cent) have the lowest numbers of citations per article. However, the publication volumes differ between projects, ranging between 185 for JustEd and 21 for SASLA. Consequently, the projects have a different number of "attempts" at generating high impact articles.

The bibliometric analysis shows that there are differences between the projects in terms of how much attention their publications have garnered from the scientific community, with little influence of outliers. 51.4 per cent of the JustEd publications have received 7 or more citations, while ValuEd has a corresponding share of 53.3 per cent, NordVET 42.8 per cent, NFHE 34.2 per cent, Learning Spaces has a share of 23.7 per cent, whereas SASLA has only one article with 7 or more citations.

Most co-written articles are written by researchers from the same country

In terms of relations between researchers and research institutions, the network analysis (see: **Annex)** shows that the most common constellation in a co-authorship is intra-national – with 73 per cent of research collaboration taking place between researchers within the same country. As many as 47 per cent of all collaborations take place within the same institution. The programme has generated 95 international co-authorships of which 57 were within the Nordic region. The average share of international co-authorship in Web of Science's Social Science Citation Index within the category Sociology and Anthropology, which includes Education and Educational research, ranged from 9 to 24.6 per cent. As such, the programme's share of 27.2 per cent international co-authorship is above the global average. According to a study on the development of co-authorships in social sciences,[15] the share of international co-authorships in Education and

[14] This includes both publications that are reported as a direct result of the funding from the programme, and publications to which the programme contributed.

[15] Henriksen, Dorte. 2016. *The rise in co-authorship in the social sciences (1980–2013).* In: Scientometrics 107:455–476.

Educational research was 12 per cent in 2013. Thus, the share of international co-authorships within the programme was twice as high as the baseline in 2013.

The programme has supported a wide range of research activities

In addition to scientific publications and researcher collaboration, several research activities have been undertaken in line with the programme's intended impact of strengthening Nordic educational research:

- **Presentations** of research findings at national and international research conferences. These include conferences organised by the projects, the NCoE, and 5 programme conferences organised by NordForsk (5 in total). More than 270 oral or poster presentations have taken place.

- **Training of PhD students** within different scientific fields and applying different approaches educational research. 3 summer schools were hosted at the NCoE with participants from the Nordics, Europe and the USA. 67 PhD students in total were involved in either the research projects or the NCoE.

- **Research mobility** through collaboration in JustEd and through research visits to universities in other Nordic countries and to universities outside the Nordics. JustEd recorded 51 visiting researchers and 51 visiting months in total. The level of research mobility in the large-scale research projects was lower, with the SAB continuously pointing to the lack of research mobility within two of the projects.

- **Development of theory, methodology and Nordic research infrastructure**. All research projects as well as the research carried out by PhD students at JustEd contributed to theoretical and methodological advancements. As illustrative example, the NFHE enabled advanced research collaboration and the use of statistical data in the Nordic countries. In terms of research infrastructure, SASLA resulted in the construction of a Nordic PIAAC database, which collates register data from the Nordic statistical offices on social, educational and labour market.

For Iceland, being the smallest country participating in the programme, interviews reveal that the programme had notable effects on the development of educational science as a scientific field nationally. Participation in the programme enhanced research quality, helped building research capacity through improved analytic skills and theoretical development, and boosted the exchange with other Nordic research communities.

DESPITE ITS EMHPASIS ON COMMUNICATION AND DISSEMINATION, THE PROGRAMME HAS ACHIEVED LIMITED SOCIETAL IMPACT

On an overall level, Oxford Research considers **the programme's societal impact to be limited at the time of the evaluation.** We find the programme to **have been less effective** in achieving results in line with the intended impact of increased knowledge-based policy and practice within the educational sectors. However, we reiterate that this evaluation is not a comprehensive impact

assessment of the programme's aggregated effects on different target areas of society (see: **Delimitations**).

Despite efforts to communicate and disseminate, Oxford Research has identified few distinct traces of sequences of impact stretching from the funded research to policy and practice levels. Several factors, ranging from the nature of the research to the design of the programme may have had an adverse effect on the programme's possibilities to communicate and disseminate its results, thereby achieving societal impact. Nevertheless, we have found several examples of dissemination efforts and communication activities, with JustEd standing out as particularly strong. Some examples of impact on policy and practice have also been identified. These include the establishment of a new Swedish language teacher education programme at the University of Helsinki and occasional examples of researchers being consulted when developing new versions of national core curricula based on the research funded by the programme.

Societal impact affected by several factors

Oxford Research assesses that several factors have affected the societal impact achieved by the programme. First, the design and orientation of the programme meant that only 5 per cent of the budget at NordForsk's and the Programme Committee's disposal was dedicated to activities aimed at directly influencing stakeholders outside academia through the spin-off projects and communication specialists. Second, the nature of social science and educational research, which is typically concerned with informing and changing minds, makes societal impact difficult to measure, compared to, e.g., technological innovation. Third, neither the projects or the NCoE were required to follow up on impact on a practice or policy level and no resources were set aside for this purpose by the programme administration. Consequently, there is limited data on the type and/or number of professionals impacted by the programme. Fourth, interviews with members of the Programme Committee and project leaders found that views differed in terms of the type of communication and dissemination activities the projects were to undertake and who these activities should be targeted towards. On the one hand, many projects did not consider it their responsibility to produce research aimed at policymakers or practitioners, speaking instead of having arranged dissemination activities within the academic sphere. On the other hand, members of the Programme Committee stated that the programme's intention was to focus dissemination efforts on target groups outside academia to achieve societal impact in the long term.

A variety of communication activities have been undertaken

One of main tasks of the evaluation has been to study the methods used to communicate and disseminate research findings. Several methods were used to communicate and disseminate the programme's research findings. These include publications and presentations aimed at a non-academic audience, engaging with policy stakeholders and using digital tools:

- **Publications** in national and international journals and books as well as publications aimed specifically at the public. A total of 106 publications aimed at the public were published, of which 28 were a direct result of the programme's funding. Of the scientific publications that were reported as either a direct or indirect result of the funding, only 15 per cent were open access, limiting access for stakeholders outside academia.

- **Presentations** at national and international conferences, with participation from different stakeholder groups such as teachers, politicians and policy makers.

- **Dissemination and engagement with stakeholders in policy**, e.g. through open access final reports that were communicated to politicians and policy makers. Reoccurring contact and interaction with national ministries and officials at the municipal level.

- **Popular communication of research findings** using web-based communication through websites such as *http://www.justed.org*, *https://nordgente.org* and social media channels. ValuEd produced a video to communicate results while Nordforsk produced a popular version brochure of main findings.

The varying nature of the research being carried out created different conditions for the projects to engage with stakeholders. User engagement was an integrated element of some projects' research designs, such as ValuEd, which adopted interactive research methods to influence pre-school teachers. Other projects, such as NordVET and NFHE, were designed to take a historical or statistical approach, only requiring the projects to engage with potential users when they had ascertained the robustness of their conclusions.

JustEd stands out in terms of communication and dissemination

There is a substantial difference between the large-scale research projects and the NCoE in terms of communication and dissemination activities. Compared to the research projects, JustEd was more active in communicating research findings to the wider public, engaging researchers with stakeholders outside academia, promoting media presence and popular communication through the JustEd website and social media. By the end of the programme, JustEd reported more than 300 documented media appearances by researchers, 62 publications targeted at the public, more than 800 web disseminations (e.g. posts on the website and social media), and 50 academic events hosted by the centre, of which 3 were major academic conferences.

Most involved interviewees agree that JustEd functioned as a coordinated network rather than a research centre. The implications of this structure for the Centre's achievement were twofold:

1. JustEd was inclusive and diverse, which encouraged creativity and exchange between research teams and researchers. There are several examples of how exchange at JustEd catalysed sustained relationships between researchers in different Nordic countries, enabling new funding applications and formalised networks. By functioning as a network, rather than a centre, JustEd served to communicate and amplify the communication of research carried out by individual researchers at the centre. JustEd representatives stated that the hiring of a communications officer at the centre had a major positive impact on the way the centre worked to communicate research findings to the wider public.

2. The network-structure meant that JustEd's management at both the central and team levels had a limited mandate to steer its development and orientation. This resulted in loose structures, limited coherence and direct scientific output, especially with a Nordic

approach. Also, JustEd did not succeed in accordance with expectations in developing common Nordic research infrastructure for educational research

PRIORITIES AT THE PROGRAMME LEVEL HAVE AFFECTED THE EFFICIENCY OF THE PROGRAMME

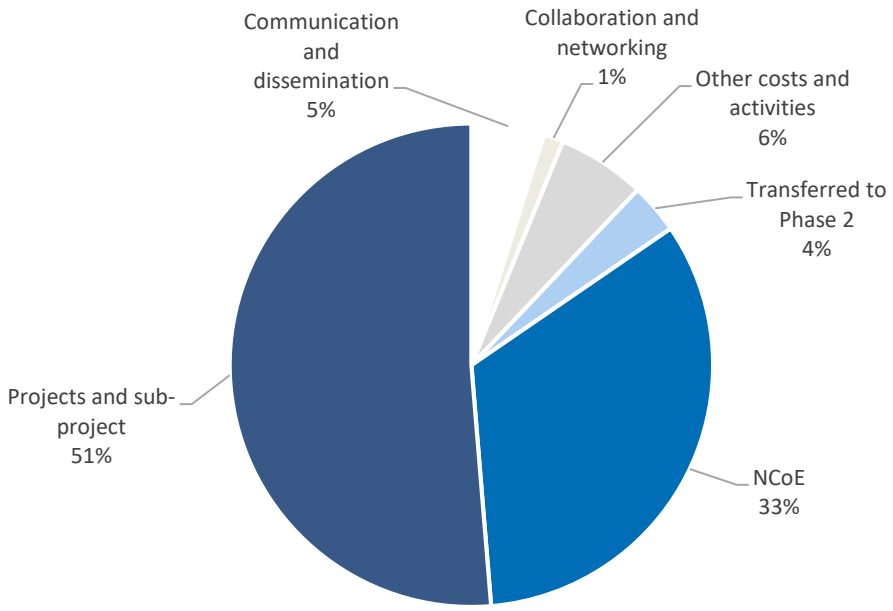
Oxford Research assesses that priorities and activities at programme level have had significant implications for the implementation and results of the programme. These priorities include both the types of activities that the Programme Committee has chosen to fund and the thematic focus of the research. While the SAB has contributed to strengthening the programme at programme-level, there are divided opinions as to its benefits for individual projects.

Vast majority of funding allocated to research activities

Oxford Research considers NordForsk's funding strategy to be pivotal to the implementation of the programme and its results. The balance in funding between different types of activities is especially relevant in direct relation to the programme's dual intentions of (1) strengthening the position for Nordic educational research, and (2) increasing knowledge-based policy and practice within the educational sectors.

Approximately NOK 68 million of the total budget of NOK 75 million was allocated to fund the research projects, the sub-project, the NCoE (including a communications officer and the PoPE network), the spin-off projects and cross project collaboration. The remaining budget was used for overhead costs and programme level activities, such as seminars and conferences, the SAB, the Programme Committee, travel costs, meeting administration, or transferred to Phase 2 of the programme.

Figure 4. Overview of budget, Education for Tomorrow Programme Phase 1.



84 per cent of the budget (see: **Figure 4**), was spent on different research activities. These included the projects and sub-project (51 per cent) and the NCoE (33 per cent). However, based on JustEd's network-nature and financial structure (see: **JustEd stands out in terms of communication and dissemination**), much of the budget allocated to the NCoE was spent on training PhDs and activities for collaborating and networking rather than on salaries enabling senior researchers to conduct research. On the one hand, some team leaders at the NCoE described this as a weakness in the centre's funding structure, giving little or no time for senior researchers to conduct comparative research within the study teams. On the other hand, this demonstrates that the programme's primary focus was to strengthen the structure and organisation of the Nordic research environment in educational research. Conducting new research through data collection and analysis was thus a secondary focus.

Only 5 per cent of the total funding at NordForsk's and the Programme Committee's disposal during the programme's implementation targeted communication and dissemination activities, constituting a relatively limited financial effort to influence stakeholders outside academia. This funding included the hiring of a communications officer at JustEd and the call for spin-off projects aimed at enhancing the end-user relevance of the research.

Diverse research activities, but lack of focus

The programme has had a diverse research focus, which Oxford Research deems to have had both positive and negative implications for the programme's efficiency. The programme spans from pre-school to university level, covers a multitude of scientific disciplines as well as a substantial number of methodological and theoretical approaches.[16] Opinions are mixed among interviewees in terms

[16] The SAB notes in its 2016 report that compulsory education only lightly features in the programme.

of how this has affected the diversity of the programme. Some interviewees emphasise the potential to learn from the differences within educational levels, scientific fields and research approaches. Others argue, however, that potential synergies were lost as a result of the programme's diversity, pointing to difficulties for the SAB in supporting the projects, and limited possibilities to learn from other projects.

Divided views on the importance of the SAB's role

Oxford Research concludes that the work of the SAB has had both positive and negative implications for the efficiency of the programme. On the one hand, the SAB supported the Programme Committee in steering the programme towards its intended impact of increased knowledge-based policy and practice. In its advice to NordForsk, the Programme Committee and projects, the SAB continuously emphasised the need to strengthen stakeholder engagement and further efforts to communicate and disseminate research findings to target groups outside academia. NordForsk responded to these recommendations by, among others, announcing the call for spin-off projects and granting funding for the communications officer. Interviewed project leaders also found the SAB to be a useful discussion partner. From this perspective, the SAB had positive implications for the efficiency and effectiveness of the programme. On the other hand, several project leaders and NCoE representatives have stated that they found the SAB's role in relation to the programme to be unclear. Some project leaders found parts of the direct support that they received from the SAB to be unproductive. Recommendations were loosely anchored in the project's research, resulting in limited possibilities for the projects to react and adapt to the suggested changes. Both the SAB itself and the projects have also pointed out that the amount of time that the SAB spent with the individual projects was too limited for the SAB to be able to formulate constructive feedback.

THE PROGRAMME'S RESULTS HAVE BEEN SUSTAINED AFTER THE FUNDING CEASED

Oxford Research finds that, at an overall level, the results of the programmes have been sustained even after the funding ceased. Sustainability has been particularly prevalent in relation to the programme's scientific benefits. These have included sustaining and developing academic skills and competencies of young researchers, further research being conducted, and new contacts, networks and research centres being established. The societal sustainability of the programme has, however, been limited.

Academic skills and competencies sustained and developed

The programme has contributed to sustaining and developing academic skills and competencies within Nordic educational sciences. At the NCoE, 51 PhD students were financed by the programme, an equivalent of 33 person years in total. Of these, 21 completed and defended their doctoral dissertations during the project period, with seven more expected to graduate in 2019. Interviews with project and team leaders have underlined the programme's notable contribution to a generational shift in the field of Nordic educational science, having strengthened the analytical skills and networks of PhD students and junior researchers in all Nordic countries.

Further research conducted in line with the programme

The programme has contributed to several new research projects that build either directly or partly on empirical data, methodological and/or theoretical developments funded by the programme. The Swedish National Research Council has, for example, funded a national follow-up project to NFHE. In addition, the Faculty of Education at the University of Helsinki has granted further funding for JustEd. Several new projects based on the research projects and the activity of the research teams at JustEd have also received funding, or are still awaiting pending applications, funding from different national, Nordic (Nordplus) and European (EU) donors.

New collaborations, networks, research centres and an education programme

In addition to the informal contacts and networks that are common within the academic research community, formalised networks building on activity within the programme have been established. The most notable example of this is QUINT, the new NCoE for educational research based at the University of Oslo.[17] As mentioned, collaboration between researchers at JustEd catalysed several new initiatives such as a platform on Nordic Research on Gender in Teacher Education (http://nordgente.org/), a new Swedish language teacher education programme at the University of Helsinki at the University of Helsinki, and formal and informal research networks. An example of the latter is the establishment of a new network for justice in education as part of the Nordic Educational Research Association (NERA).

Limited societal sustainability

Despite the programme's results in achieving sustainability within the academic sphere, there is little evidence that the programme has contributed to sustainable results outside academia. As with societal impact, we deduce that a combination of factors has impacted the programme's societal sustainability. These include the design and orientation of the programme, the nature of educational research, lack of requirements and resources to follow-up, and the design and timing of this evaluation.

Conclusions and Recommendations

This evaluation has had two key objectives. First, to assess how the research funded by the Education for Tomorrow Programme Phase 1 has contributed to fulfilling the programme objectives. Second, to offer recommendations on the development of possible future Nordic research efforts within educational research.

REVISITING THE EVALUATION QUESTIONS

Oxford Research has evaluated the programme within four main areas. First, we have assessed the scientific and societal impact of the programme, including synergies between projects, and the organisation of an excellent Nordic research environment. Second, we have studied the methods used by the projects and the NCoE to communicate and disseminate research findings. Third, we have assessed the Nordic added value of the programme. Fourth, we have mapped measures

[17] QUINT builds on the activity in Team 3 at JustEd (*Justice through Educational Practices? Analysis Innovative Cultures of Teaching and Learning in Nordic Contexts)*.

undertaken to reach or maintain gender balance and described how a gender perspective on research topics has been implemented by the funded research.

The evaluation has found that **the programme's main impact is scientific**. Collectively, the projects and the NCoE have produced a large number of scientific publications, published in reputable journals, achieved a high number of citations in absolute terms, and had a higher share of international co-authorships than average. In addition, researchers have presented at several scientific conferences and made use of the opportunity provided by the programme to visit universities in the other countries. Finally, the programme has contributed to the development and sustainability of academic skills and competencies in Nordic educational sciences by contributing to the training and networking of junior researchers and PhD students.

There are many documented practices of how the projects and the NCoE have worked to communicate research findings to stakeholder groups outside academia. These have included adopting interactive research methods that engage with practitioners, publishing articles aimed at the broader public, and communicating through websites and social media. The results of the evaluation points to the NCoE as having been particularly active in communicating with stakeholder groups outside academia. However, factors such as the programme's design, the nature of educational research and differing views on the kind of communication activities the projects were to undertake have resulted in **the programme having a limited societal impact** at the time of this report.

Oxford Research assesses that **the Nordic relevance of the programme is high**, despite national differences in the number of applications and granted funding. In terms of Nordic added value, the evaluation shows that the programme has contributed to strengthening educational research in each Nordic country. It is, however, less evident that the programme has strengthened the Nordic region's position in educational research, despite a financial distribution that emphasised Nordic collaboration and networking activities.

In terms of gender aspects, the evaluation shows that **a gender perspective permeates the programme**. Two gender perspectives have been relevant. First, the majority of the research carried out within the programme includes a gender perspective, reflecting what is common within the field of educational sciences. Second, there was a gender balance among project and team leaders. Given that education is a female-dominated field, the projects also strove to promote male researchers.

PROBLEMS TO ADDRESS AND STRENGTHS TO BUILD ON

Oxford Research suggests that NordForsk considers the following points in potential future research efforts within educational research:

1. **Determine the focus of the programme and steer actively towards it**
   The evaluation has pointed to several difficulties in achieving the dual intended impact of (1) an excellent Nordic educational research, and (2) contribution to knowledge-based policy and practice. For future programmes, we recommend that NordForsk strengthens the capacity to achieve such dual programme goals by determining a suitable focus where

theory-oriented and practice/policy-oriented research converge, and letting that focus guide all priorities and decisions taken throughout the programme.

2. **Clarify the concept of Nordic added value**
   The evaluation has examined the Nordic added value of the programme from several angles. For future programmes, we suggest that NordForsk clarifies which concept of Nordic added value the programme emphasises. This includes considering what it means to contribute to "an excellent Nordic research environment", necessary support from the programme level, and creating sustainability for Nordic added values.

3. **Articulate how the funding will feed back to stakeholders outside academia**
   The evaluation shows that priorities and activities that affect the ability to reach stakeholders outside academia permeate the different levels and phases of a programme's implementation. For future programmes, we recommend that NordForsk defines how a feedback loop to the Nordic Council of Ministers for Education and Research (or another relevant group) could be established during the programme. Already at the start of a potential future programme, it should be clear how the funded research will feed back to practice and policy at different levels in the Nordic countries.

4. **Strengthen coherence within future programmes**
   This recommendation relates to the above three recommendations, with the evaluation pointing to incoherence in the programme's implementation in terms of lack of synergies. For potential future programmes, Oxford Research suggests that NordForsk considers (1) the need for an operative leadership function at the programme level; (2) limiting the programme's thematic scope; and/or (3) allocating more resources to activities aimed at achieving Nordic and thematic synergies within the programme.

5. **Improve consistency and coherence in reporting**
   The evaluation has found a lack of consistency and coherence in the reporting completed by the projects. We suggest that NordForsk reviews and improves its reporting templates, including the guidelines used for reporting, to better be able to monitor, follow up, measure and evaluate potential future programmes.

6. **Retain flexibility in the implementation of future programmes**
   The evaluation shows that a success factor in the implementation of the programme has been the flexibility to adapt and steer the programme to align with its objectives. Oxford Research recommends that NordForsk retains this flexibility in potential future programmes.

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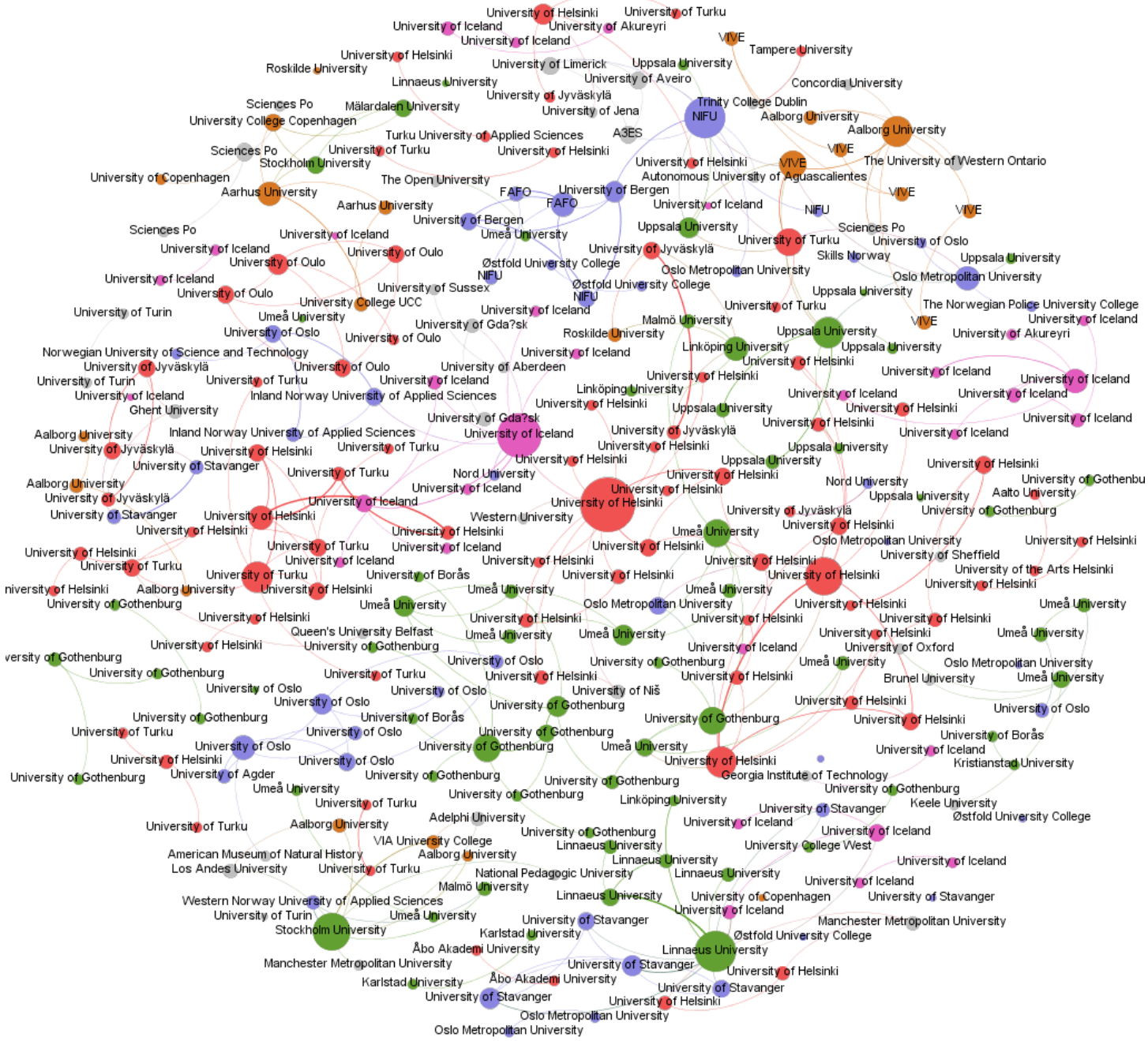
Annex

Finland	28,5 %
Sweden	22,7 %
Norway	16,3 %
Iceland	11,2 %
Denmark	7,9 %
Other	13,4 %



The network map on the previous page highlights co-authorships between the 277 scholars we have identified within the program. Each node in the network represents an author and the connections – "edges" – represent one or more collaborations. We have registered 350 co-authorships in total, by counting each possible pairing of authors of a single publication as one co-authorship. This means that an article with 4 authors: A, B, C and D will generate 6 edges (e.g. AB AC AD BC BD and CD), while a single-author paper would generate none. The size of the nodes reflects the total number of co-authorships the researcher has participated in (in-degree). Each node is labelled with the institution that the author is affiliated with, and the colour coding corresponds to the country in which this institution is located. The thickness of the edge represents the number of co-authorships between the connected authors.

From visual inspection alone it becomes evident that the most common constellation in a co-authorship is intra-national – between researchers within the same country (73 per cent). Around half of all the collaborations are within the same institution (47 per cent). However, the program has generated 95 international co-authorships of which the majority of 57 were within the Nordic region. The share of international co-authorship in Web of Science's Social Science Citation Index within the category Sociology and Anthropology, including Education and Educational research, ranged from 9 per cent to 24.6 per cent in 2013, according to a comprehensive study on the development of co-authorship in the Social Sciences.[18] Thus, a share of 27.2 per cent international co-authorship can be considered above the global average.

[18] Henriksen, Dorte. 2016. *The rise in co-authorship in the social sciences (1980–2013).* In: Scientometrics 107:455–476.