



Knowledge Centre
for Education

University of Stavanger

FILIORUM Centre for Research in Early
Childhood Education and Care
University of Stavanger



REVIEW OF RESEARCH AND ASSESSMENT

Empirical research on Scandinavian early
childhood education and care in 2020

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Foreword

This report is part of an extensive range of reports on Scandinavian early childhood education and care research. Since 2006, systematic efforts have been made to obtain the most complete overview possible of all published works. Until 2017, the work was conducted with funding from Denmark, Sweden and Norway. In 2018–2019, the systematic reviewing was funded by the Norwegian Directorate of Education and Training and the Danish Evaluation Institute. This report, for the year 2020, has been funded by the Ministry of Education and Research (Norway), the Directorate of Education and Training (Norway) and the Knowledge Centre for Education (through basic funding).

We are committed to ensuring that the database is further developed and that more people become aware of the resource represented by the database. It is unique! We hope that the work that has been carried out will be of benefit to many, including early childhood education and care researchers, students of early childhood education and early childhood education and care employees.

We would like to thank the Scandinavian panel of experts for their contributions to the quality assurance of our work and the assistance received from Sara Esmaeeli from FILIORUM. Last but not least, we would like to extend heartfelt thanks to Astrid Guldbrandsen, who led the work on Reviewing and assessing Scandinavian research for the year 2020 in close collaboration with May Irene Furenes, who was the project manager last year.

Elaine Munthe

Director

Knowledge Centre for Education

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Summary

The 2020 review shows that the number of publications relating to Scandinavian early childhood education and care (ECEC) continues to increase. The 2020 review includes 219 studies, of which 167 (77%) are considered to be of medium or high quality. There has been a clear increase in high-quality studies since 2018. This bodes well for Scandinavian ECEC research. At the same time, the share of studies of medium quality has decreased in this year's study and we can see that the share of studies that do not meet the most fundamental requirements for good research reporting are nearly one quarter and unchanged from last year.

Sweden is still the country that contributes most studies to the review, but it is Norway that mostly accounts for the increase in the number of studies in 2020, with 37% of the studies now. This could indicate that the Norwegian research community on ECEC has been strengthened through more participants and/or increased levels of activity. The share of studies published in English has also increased and we can clearly see that the majority (84%) of these are considered to be of high or medium quality, while the proportion of studies of high or medium quality in Swedish, Norwegian and Danish is at 63% overall.

In 2020, we also found that the use of quantitative methods has increased, while there has been a decline in the use of qualitative methods. Qualitative methods are still dominant, but this trend could indicate greater diversity in the type of questions that are asked, which would constitute a positive development for the ECEC field.

The topics on which there are clearly most studies within Scandinavian ECEC research in 2020 are still *Teaching and learning* and *Educational practices*. There has been a notable increase in studies on the topic of *Methodology* and a significant decline in studies on the topic of *Evaluation and assessment*, which is an interesting result to highlight without us being able to say that a trend can be seen from the material.

Another finding from this year's review is the ages of the children that have been observed and interviewed in the studies. In previous years, very few studies have used the youngest children as informants, while this share has quadrupled in 2020. Nevertheless, the oldest children are still most often used as informants.

1 Introduction

1.1 Background

The NB-ECEC database is a result of the collaboration between the Danish Evaluation Institute (EVA), the Swedish National Agency for Education and Training and the Norwegian Directorate of Education and Training. The database allows users to search for and identify studies with brief summaries that have been quality-assessed and classified using predefined categories. It also provides access to reports documenting the systematic reviewing of research from the three countries for every year since 2006. The reports provide access to tables and the assessment of trends in Scandinavian ECEC research. In this sense, the database constitutes a key knowledge base for early education student teachers, early education teachers and ECEC managers, as well as researchers and decision-makers at local authority and national level.

This year's report constitutes a review of Scandinavian (Denmark, Norway and Sweden) empirical research on ECEC available to children between the ages of 0 and 6 years published in 2020. In addition to the review, the report also contains a comparison with findings from 2018 and 2019.

The 2020 review was conducted by the Knowledge Centre for Education at the University of Stavanger. The Knowledge Centre for Education is located at the University of Stavanger and has the mandate to conduct and disseminate systematic reviews of relevance to the education sector as a whole. This year's research project was commissioned by the Norwegian Ministry of Education and Research.

A panel of experts consisting of ECEC researchers from Denmark, Sweden and Norway assisted in the work on assessing the studies included in this year's research review. One criterion for selecting the composition of the panel was to ensure that the panel, overall, covered a large proportion of ECEC research with regard to both content and methodology. The expert panel consisted of the following researchers from each of the three countries:

- Professor Dorte Bleses, University of Aarhus, Denmark
- Ole Henrik Hansen, researcher, University of Aarhus, Denmark
- Associate Professor Jan Thorshauge Frederiksen, University of Copenhagen, Denmark
- Professor Camilla Björklund, University of Gothenburg, Sweden
- Docent Hanna Palmér, Linnaeus University, Sweden
- Professor Pia Williams, University of Gothenburg, Sweden
- Professor Thomas Moser, University of Stavanger, Norway
- Associate Professor Karianne Franck, Queen Maud University College, Norway
- Lars Guldbrandsen, researcher, Oslo Metropolitan University, Norway

In addition to the expert panel, six researchers from the Knowledge Centre for Education and one researcher from FILIORUM helped code the studies included in this research review. Please see Appendix 1 for a complete list of names.

1.2 Purpose

The overall purpose of the series of annual reviews of Scandinavian ECEC research is to make the content and results of empirical ECEC research available. The content and results are aimed at students, teachers within the ECEC field, educational consultants, researchers, policy-makers, ECEC facility owners and others with an interest in ECEC research.

The purpose of this year's review was to compile and quality-assure published research on Scandinavian ECEC for children between 0 and 6 years of age in Sweden, Norway and Denmark in 2020. The report will contribute to providing the field of practice and research with a comprehensive picture of available research of good quality with a focus on early childhood in the Scandinavian countries. For 2020, the commissioned assignment will entail an assessment of any changes compared to the reporting for 2018 and 2019. As with the results from previous reports, the findings for 2020 will also be openly available via the Nordic Base of Early Childhood Education and Care (NB-ECEC) database. In addition to conducting the review itself, the Knowledge Centre for Education has also been responsible for writing brief summaries of all included studies in Norwegian and translating these into English.

2 The methodological basis of the research review

In this chapter, we will describe the methodological guidelines applied during the preparation of the 2020 research review. The purpose of this chapter is to explain the various phases and methods used to create transparency and strengthen the credibility of the findings.

The research review consisted of the following phases: 1) Systematic searches in relevant databases and hand searches for publications from 2020, 2) screening of titles and abstracts, as well as a screening of the full text for the purpose of identifying relevant studies, 3) coding and quality assessment of the studies and 4) analyses and reporting.

2.1 Literature searches

The review of Scandinavian empirical ECEC research published in 2020 is based on a systematic search of databases and educational journals relevant to Scandinavian ECEC research.

For 2020, searches have been performed in the Scandinavian databases NORA (Norway), ORIA (Norway), Idunn (Norway), Libris (Sweden), DIVA (Sweden, technical difficulties), SwePub (Sweden) and Bibliotek.dk (Denmark). As in previous years, literature searches have also been conducted via the international databases ERIC, Scopus and Web of Science.

Appendix 3 provides a complete overview of the databases and journals that have been searched.

2.2 Inclusion and exclusion criteria

When working on systematic reviews, it is common to decide which types of studies to include or exclude before conducting searches. The inclusion and exclusion criteria for publications included in this systematic review are essentially the same as those used in previous years.

Research: *Research* refers to the reporting of research and systematic knowledge production that contains, as a minimum, a research question or topic, a methods section and a conclusion. The research must also relate to existing theoretical or empirical research. As with previous years' reviews, only educational and social sciences research relating to ECEC has been included. This means that research relating to natural science and health science problems are not included in the review, even if such research deals with data generated about ECEC. PhD theses published as publicly available monographs are included. Article-based PhD theses are not included, as articles from these will be included in the year of publication. Lower degree studies, such as bachelor's, master's and candidate level, as well as licentiate theses, are not included in this research review. Popular science presentations, textbooks, policy documents, anthologies, evaluations, and development work, as well as research with a focus on the development of methodologies, are also not included.

Publication year: Studies must have been published during the calendar year covered by the review (i.e. included studies must be published in a version issued during the 2020 calendar year).

Country: Studies must deal with ECEC in Scandinavia. Scandinavian refers to studies based on data from ECEC research in Denmark, Sweden or Norway. Studies must, as a minimum, look at data from one or more of the Scandinavian countries. Studies that report data from other OECD countries are also included, as long as they also report data from one of the Scandinavian countries.

Target group: This study will directly address the purpose of and activities relating to content, working methods, people, the environment in or relevant aspects (such as professional development) of ECEC as an institution. This means that the study is aimed at ECEC as a public or private institution that provides a service to children between the ages of 0 and 6 years. This means that studies conducted in ECEC settings involving children of this age group but that do not directly relate to ECEC will be excluded. For example, a study on the vocabulary of four-year olds that does not relate to the practice of ECEC (independent of ECEC as the context of language development) will be excluded. From a Danish context, we include dagpleje, vuggestue, børnehave and integrerede institutioner. From a Norwegian context, we include barnehage, åpen barnehage and familiebarnehage, while we include förskola, förskoleklass, pedagogisk omsorg and öppen förskola from a Swedish context. Studies from Swedish preschool classes have been included, although this became part of compulsory education from 2018 and is now part of the educational activities that take place at Swedish primary schools and lower secondary schools. Institutions with a particular academic or content-related profile, such as nature daycare facilities and sports daycare facilities, have been included in this research review as they are governed by the childhood education legislation for the countries in question. Studies looking at the transition between ECEC and school and that have a special focus on ECEC as an institution have also been included.

Topic: The research question of the study is aimed explicitly at aspects of relevance to ECEC. Studies that deal with children, parents and/or educational perspectives have been included. We also include studies that focus on the perspectives of other stakeholders, such as local authorities or government perspectives on ECEC. Only educational and social sciences research relating to ECEC has been included. Studies that present the topic, data collection and results relating to ECEC in an institutional framework have been included. Furthermore, we also include studies addressing the transition between ECEC and school if the study relates to ECEC. Studies aimed at increasing knowledge about children, parents or educators, management aspects, financial or societal aspects relating to ECEC have also been included.

Two key changes have been implemented for 2020 in consultation with the expert panel and the contracting authority. One of these is that Swedish licentiate theses are no longer included as theses. To the extent that they consist of one or more articles (as many of them do), any published articles will be included. The difference is that the full thesis will no longer be part of the materials for 2020. The other change is that article-based theses from all Scandinavian countries are no longer included as theses, but the articles have been included for the year of publication. There was some risk that some studies would be included more than once: One article could have been published and included in 2017, while the entire thesis was completed with the article in 2020 and the thesis with all articles would then have been subject for inclusion again. Only monographs will be included now, while article-based theses will be included as articles only in the years when the articles were published.

2.3 Screening

We have used EPPI-Reviewer Web 4 software in our work on screening, coding and reporting. The software was developed by the Evidence for Policy and Practice Information and Coordinating Centre (EPPI Centre) at the Institute of Education, University of London.

All 2,771 studies identified through systematic searches in Scandinavian and international databases and journals have been read by two researchers that have assessed each study independently of one another. Firstly, two researchers screen the title and abstract in order to exclude any studies that do not meet the inclusion criteria. The articles are subsequently read in full. Those that do not meet the inclusion criteria are excluded. Disagreements relating to the exclusion of relevant

studies during the screening phase are discussed by two independent individuals in order to reach a joint decision. After the screening process had been completed, the Scandinavian panel of experts had the opportunity to review all included studies and propose research publications that were not identified during the search process. A further two articles from 2020 were therefore included for further data extraction and assessment. See appendix 4 for a summary of the search and screening phase, as well as the review of relevant studies. See also appendix 5 for a comprehensive overview of the reasons for excluding articles.

2.4 Coding and assessment of quality

A total of 219 studies were coded and quality-assessed. The coding form used for 2020 was identical to the one used for previous reviews. The form includes both general and more subject-specific questions. The general questions relate to matters such as the geographical origin of the studies, as well as the language, research design and methodology. The subject-specific questions apply to data relating to the study content, such as the purpose and topic of the study, as well as various aspects associated with ECEC for 0–6 year olds in Denmark, Sweden and Norway. The form is structured into three sections and the questions were answered using established response categories and respondents could elaborate using free text boxes under each response.

In order to maintain impartiality, all researchers at the Knowledge Centre for Education/FILIORUM and the panel of experts were asked to declare any conflict of interest. Studies were randomly assigned to all researchers, with the exception of cases for which a conflict of interest had been declared (as these were not assigned to researchers that were not impartial, but randomly assigned to another researcher) or in cases where the researcher did not have sufficient Scandinavian language proficiency and was therefore assigned articles in English only.

Based on a comprehensive assessment of research quality, each study was assessed as high, medium or low quality. The research quality therefore reflects a comprehensive, systematic assessment of the extent to which each study meets general scientific standards for empirical research. The quality of the studies has been assessed exclusively on the basis of what is presented in the publication itself. This means that the assessment is based on how the study is presented. Studies assessed as medium or high quality report in a credible, sufficiently clear and concise manner. For 2020, a total of 169 of the 219 publications that met the inclusion criteria were assessed as having medium or high research quality. These 169 publications are therefore included in the Nordic Base of Early Childhood Education and Care (NB-ECEC) for the year 2020.

As mentioned, the quality assessments were conducted by two independent researchers. One of these was an internal researcher from the Knowledge Centre for Education and the other was from the panel of experts. In the event of disagreements between the researchers, the assessment of the researcher from the expert panel was used as the final assessment if the disagreement related to whether the research was of medium or high quality. In cases where there was a disagreement relating to low quality, a third (and in a few cases also a fourth) researcher was asked to conduct an independent assessment. This was done in order to ensure that all studies of medium and high quality were included in the database.

In order to ensure reliability in the assessment of the studies, all researchers without experience from previous years participated in a compulsory course providing training on coding and quality assessments of research literature. Meetings were also convened at which researchers had the opportunity to discuss relevant matters relating to quality assessments. A chat function was also created using Teams (individually for the two groups in order to ensure that the assessments were independent) via which questions could be raised throughout the assessment process. The purpose

of the meetings and the chat function was to ensure that relevant questions relating to coding and data extraction could be raised in order to enhance the quality of the assessment process.

Summaries have been written for all studies assessed as having a medium or high research quality. The summaries for these studies have been published in the Nordic Base of Early Childhood Education and Care (NB-ECEC) <https://www.nb-ecec.org/no/sok-i-forskningsstudier>. It is not possible to identify which studies have been assessed as having high or medium research quality using the database.

3 Early childhood education and care research in 2020

This chapter describes and analyses the most important trends in Scandinavian empirical ECEC research for the year 2020, as well as any changes compared to the reporting for the years 2018 and 2019. We will also report on the research quality for the studies included for the year 2020 and compare findings with the previous review. As in previous years, we will report on the number of publications by country, publication language, research design and methods used. Furthermore, we will also present the topics highlighted in Scandinavian research. Finally, the report will provide an overview of the quality assessment in relation to the type of publication, method, publication language, country and purpose of the study (appendix 6-9).

3.1 Included studies and distribution by country and language

Figure 1 shows the total number of studies included for 2020, as well as the total number in 2018 and 2019. We can see from the figure that there has been a small increase year-by-year from 195 in 2018 to 204 in 2019 and 219 in 2020.

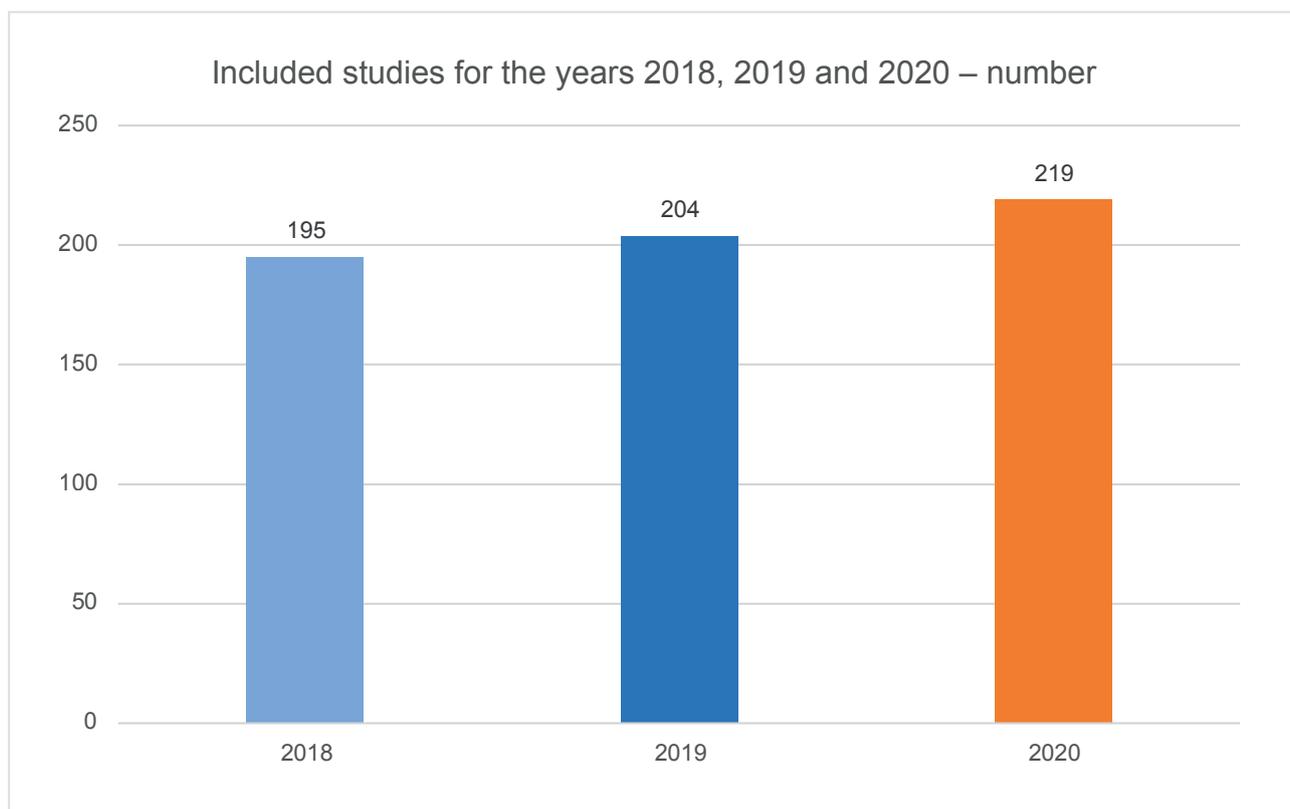


Figure 1. The number of studies included for the years 2018, 2019 and 2020.

In previous years, we have seen that the number of included studies was relatively stable at around 50 from 2006 to 2010 and then gradually increased, with the exception of 2015 and 2017 (stricter inclusion criteria), until peaking in 2019 with 204 included studies (see reports from Bondebjerg et al, (2018), Bondebjerg et al, (2019) and Furenes et al (2022). We now see that the figure continued to increase in 2020.

One explanation for the increases in 2018 and 2019 could be that searches for literature from these years were conducted in several international databases. We have used the same search strategy

for 2020 and the continued increase could therefore testify to a general increase in research activities in the field of ECEC. The coronavirus pandemic may have contributed to this increase, for example if researchers had more time to finalise scientific work.

Figure 2 presents an overview of countries in which studies were conducted in 2020. Sweden has a total of 101 registered studies, followed by Norway (82) and Denmark (49). Developments in the last three years (Figure 3) show that while the results from Sweden and Denmark are relatively stable, there has been a notable increase in the number of Norwegian studies from 2019 to 2020.

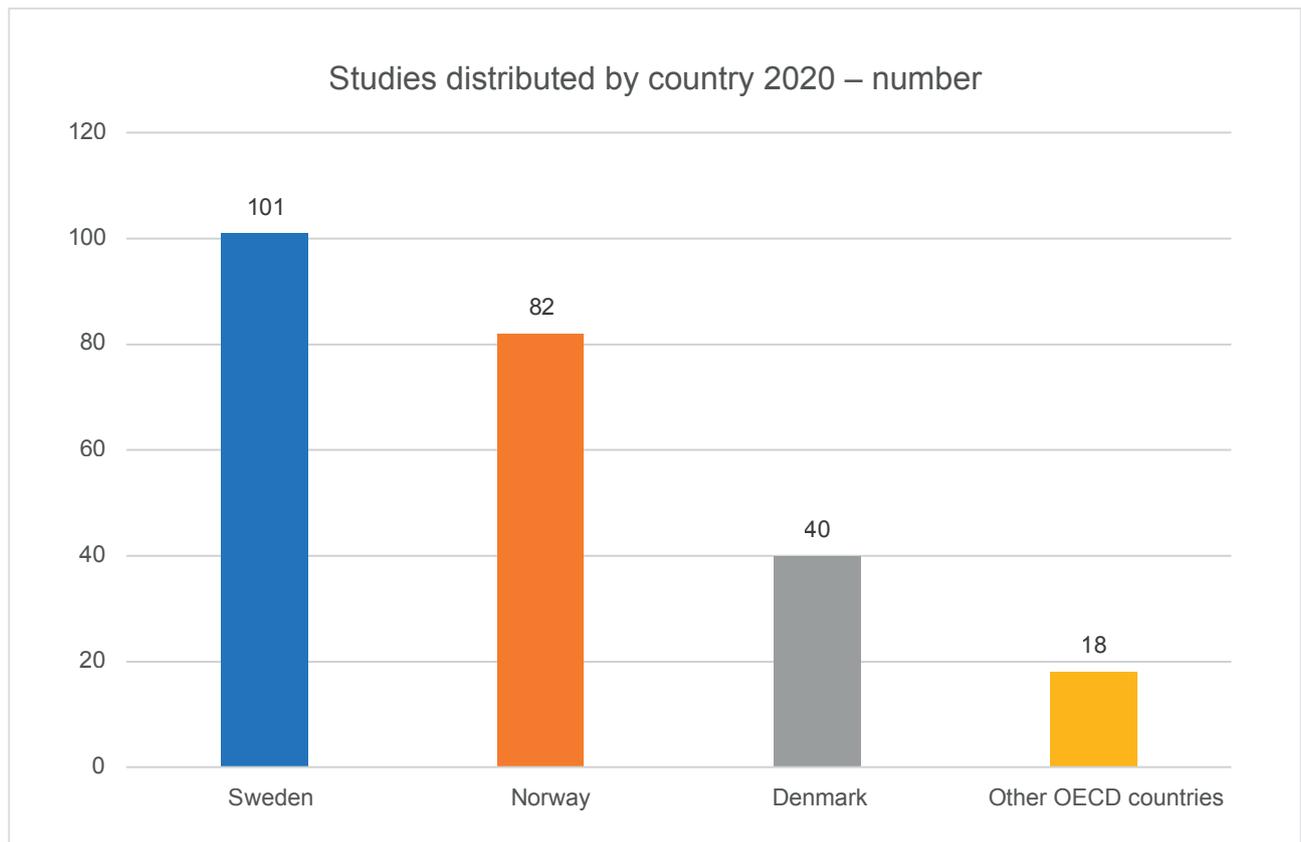


Figure 2. Countries in which studies were conducted in 2020. It is possible to register multiple countries for a single study.

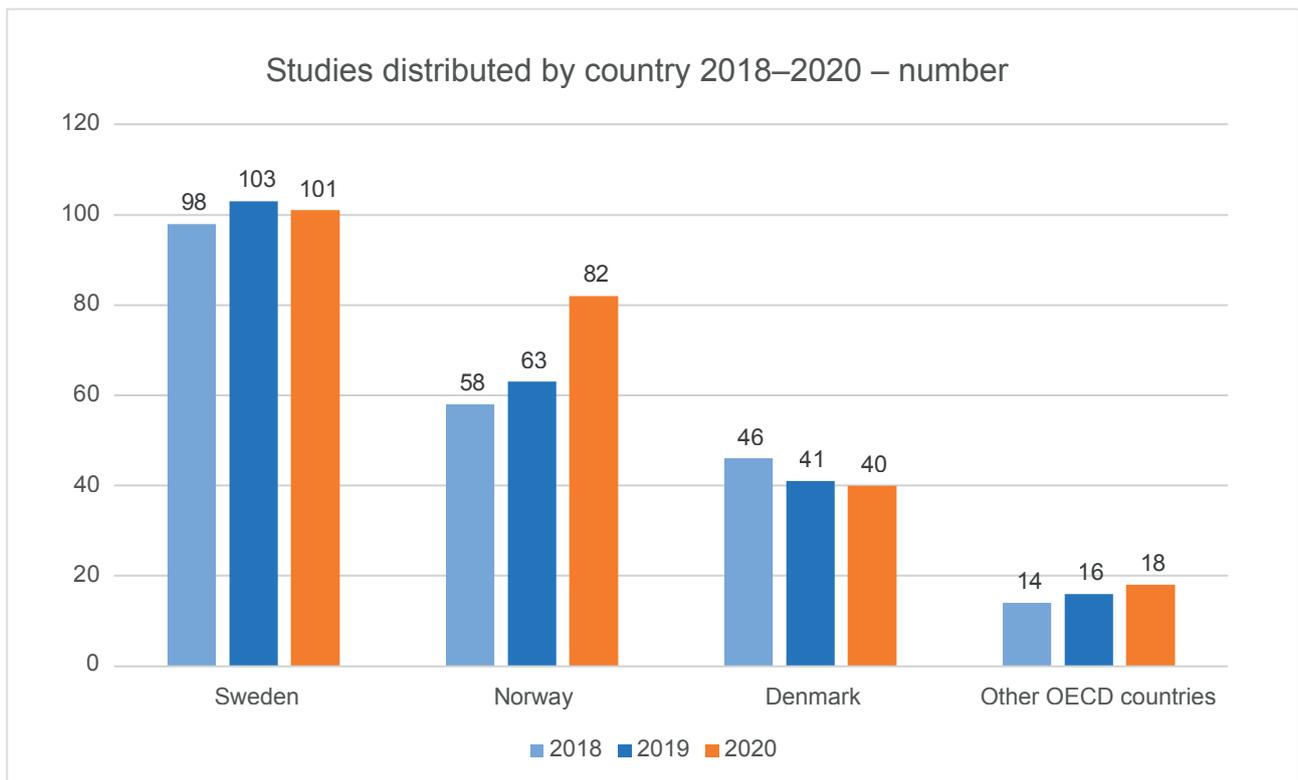


Figure 3. Countries in which studies were conducted in 2018, 2019 and 2020. It is possible to register multiple countries for a single study.

Historically, it can be noted that Denmark accounted for more than one third of the contributions in 2006, but that it has been the country with the fewest contributions since 2009. The proportion of Danish publications has varied between 15 and 32 per cent and was 18% in 2020. By comparison, Sweden contributed 46% of the included studies for 2020, while the figure for Norway was 37%. Sweden was therefore the country with most contributions to the database in 2020, just as in 2018 and 2019. Norway's contribution has increased remarkably in the last year's reporting compared to 2018 and 2019. From 2015 to 2019, Norway's contribution did not increase to any notable extent but varied between 40 and 63 contributions. The proportion of research including ECEC in OECD countries remains low but is increasing slightly.

One thing worth noting is that the reviews from previous years included Swedish licentiate theses. This degree does not exist in Denmark and Norway. In 2020, the decision was made to exclude licentiate theses. Many licentiate theses now consist of one or more articles and published articles will, of course, be included in the selection regardless of whether they are part of licentiate theses. In terms of contributions by percentage, Sweden is now down four percentage points compared to 2018 and 2019, with Sweden accounting for 50% of studies in both of these years.

In summary, we can state that Norway is primarily responsible for the increase in the number of studies included since 2019, while contributions from Sweden and Denmark have remained stable.

Figure 4 shows the distribution of studies by publication language.

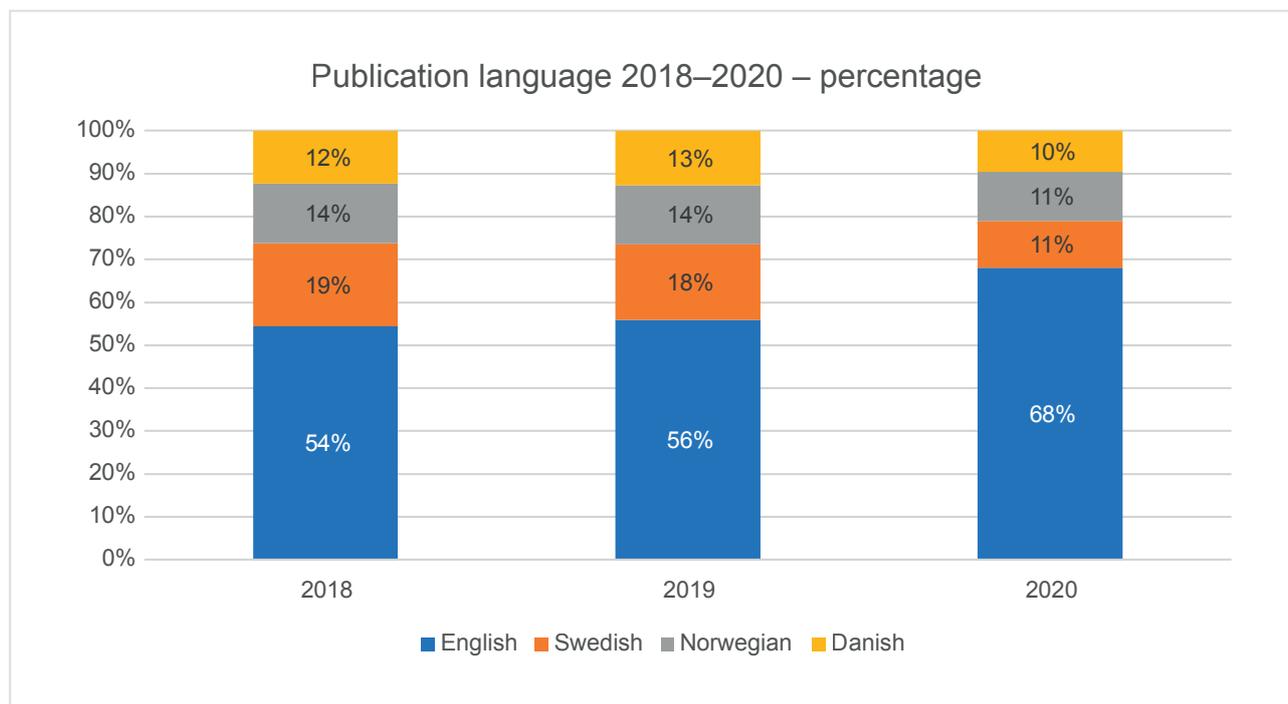


Figure 4. Publication language in 2018, 2019 and 2020.

The figure shows that in 2018 and 2019, 54 and 56% of the included studies were authored in English, but the latest review (2020) shows that this figure has increased to no less than 68%. Furthermore, the publication languages for 2020 are roughly equally distributed between Swedish (11%), Norwegian (11%) and Danish (10%). Compared to the previous reporting (2018/2019), there has been a small reduction in articles in Norwegian and Danish (both have decreased by 3 percentage points) and a somewhat greater reduction in articles in Swedish (down by 7 percentage points). In Furunes et al, (2022) (Figure 2), language developments since the database was established in 2006 are illustrated and this indicates a possible stagnation in the increase in studies published in English. As illustrated in Figure 4 above, this is not supported by the findings for 2020. The proportion of studies published in English increased again in 2020 and is now at the highest level ever recorded.

The fact that the proportion of studies published in English is so high and increasing compared to previous years could indicate more international collaborations, for which English is the common language, as well as a trend observed in most research fields: namely that English has become the preferred language in academia in order to ensure that research has international reach.

3.2 Applied research methods

Figure 5 shows the various research methods used in the included studies for 2018, 2019 and 2020.

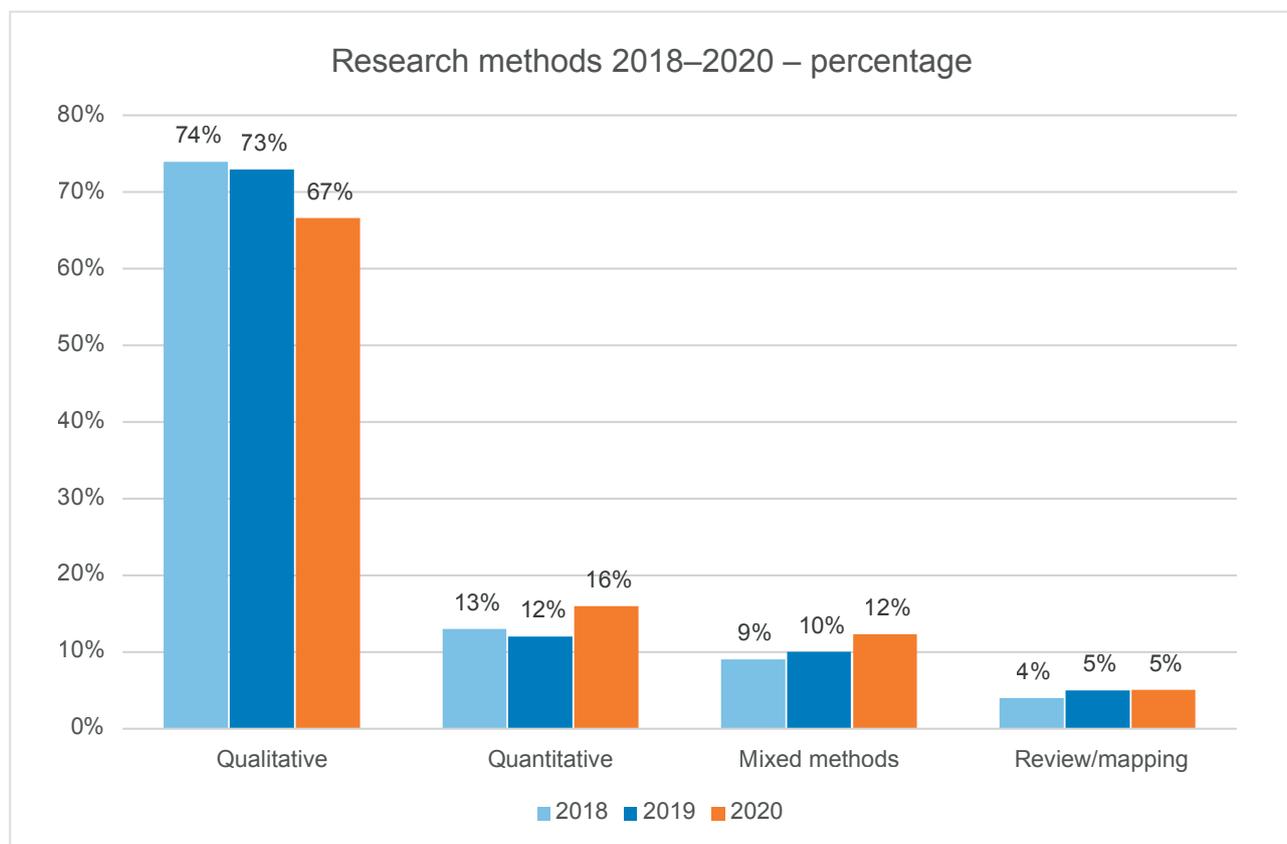


Figure 5. Research methods for 2018 and 2019. Only one response was provided for each study.

Qualitative methods was most commonly used in 2018, 2019 and 2020. Nevertheless, we can see from the figure that there has been a decline in the use of qualitative methods since the previous reporting: from 74/73% to 67% (146 studies) in 2020. At the same time, Figure 5 shows an increase in the number of studies using quantitative and mixed methods. These have increased by 4 percentage points (to 16%, 35 studies) and 2 percentage points (to 12%, 27 studies) respectively from 2019, while the review/mapping method (used in the production of reviews) has been stable at 4-5% over the last three years. A total of 11 studies, which constitutes 5% of the included studies, used this method in 2020.

3.3 Study design

Figure 6 shows the study designs used in the included studies for 2020. As we can see from the figure, most studies (30%) use *observation* as the study design, followed by *ethnography* studies (24%) and *view studies* (23%). The proportion of observational studies has fluctuated somewhat over the past three years (between 25 and 33%), but this has been the most commonly used study design over the three years. Furthermore, this year’s review shows that the proportion of *cross-sectional* studies has doubled since 2019, from 8% to 16%. In 2018, the proportion was 7%, so the increase is extensive compared to the figures from the previous review. At the same time, we have also seen a significant decline in the proportion of *case studies* (down 7 percentage points from 19% in 2019 to 12% in 2020) and in the *other* category, which has gone down from 21% in 2018 to 11% in 2019 and is now at 7%. The *other* category includes studies with a design that does not fit into any of the other categories. In 2020, we find studies referred to as comparative studies, field studies and design studies.

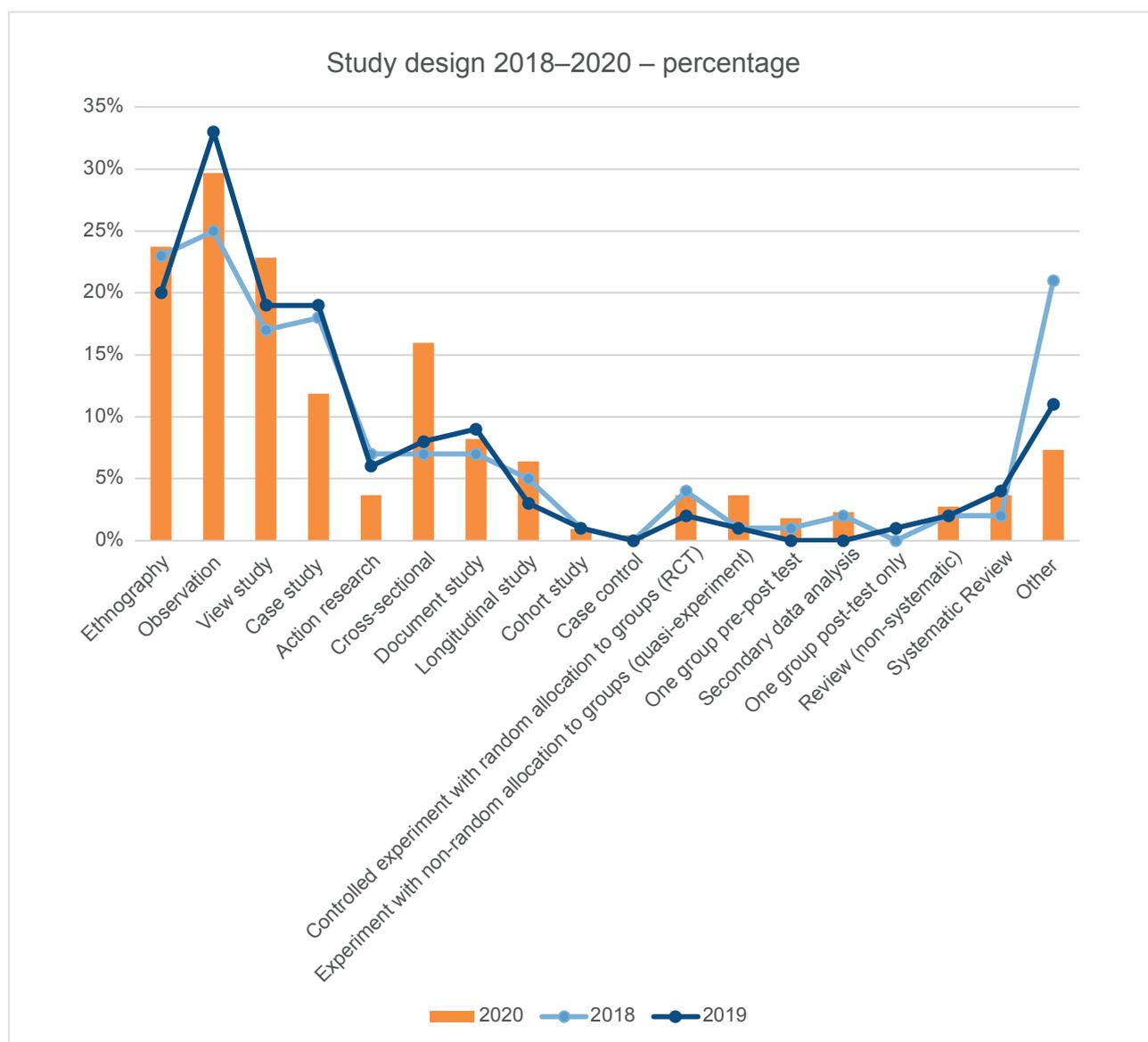


Figure 6. Study designs used in 2020. It is possible to register multiple designs for a single study. 2020 is shown using orange bars, while 2018 and 2019 data is shown as light blue and blue lines respectively.

Figure 7 shows reported data collection methods for the included studies.

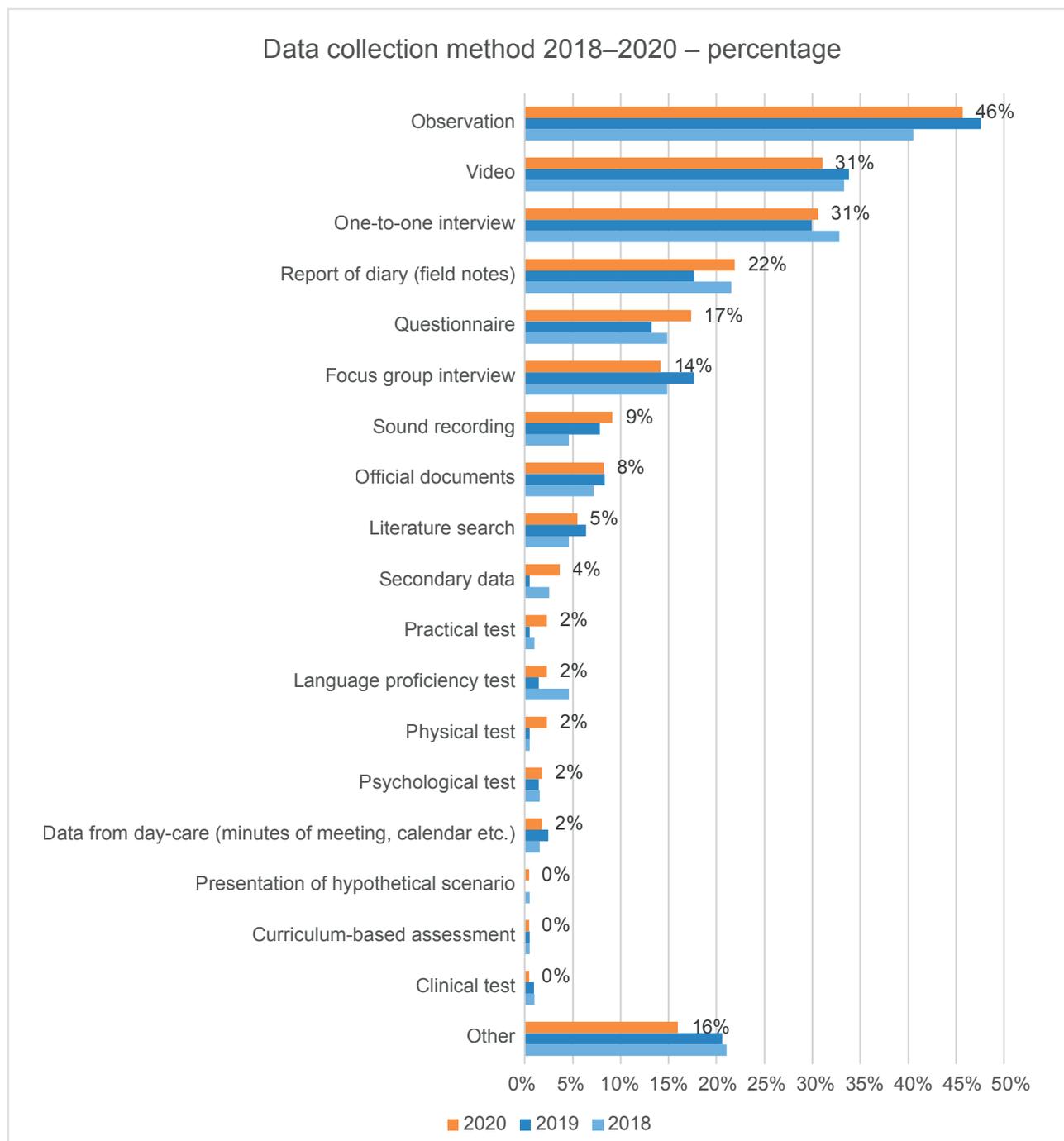


Figure 7: Registered methods for data collection for the years 2018, 2019 and 2020, by percentage. The percentage for 2020 is shown in the data label. It is possible to register multiple data collection methods for a single study.

Figure 7 shows that most studies continue to report using *observation* as the data collection method. Even though there has been a small increase in the *number* of studies using observation as the method for 2020, the *percentage* is still down from 48% to 46%. In 2018, 41% of the studies reported having used observation, so the proportion appears to fluctuate somewhat from year to year. Furthermore, *video* and *one-on-one interviews* remain the second most commonly used methods for data collection and both of these were used in 31% of the studies. Video observation has experienced a small decline (down 3 percentage points) from 2019, while one-on-one interviews displays a

small increase (1 percentage point) from the same year. Furthermore, we have also seen an increase in this year's review for the fourth and fifth most commonly used data collection methods, *report of diary (field notes)* (up 4 percentage points to 22%) and *questionnaire* (up 4 percentage points to 17%), while there has been a decline in *focus group interviews* (down 4 percentage points to 14%) and the category *other* (down 5 percentage points to 16%). The other categories were all used in less than 10% of the studies. In 2020, as in 2018 and 2019, there were few studies (0-2% in 2020) using various tests (*language, clinical, physical, practical or psychological*). The use of secondary data in ECEC research has increased to 4% in this year's review, from 3% in 2018 and 0% in 2019.

3.4 The purpose and content of the research

The purpose of the studies has been coded using four categories. Descriptive, exploration of relationships, effect studies or studies of interventions ('what works') and mapping/synthesizing research. The content of the studies has been coded to the various topics addressed in the studies. One study may deal with several topics, so multiple topics may have been registered for many of the studies. We have also coded who the informants in the included studies are. By this, we refer to the people who are observed, interviewed or generally provide information about those covered by the study. It is worth noting that informants are not necessarily those covered by the study or those the study seeks to address, but that they often are. As an example, a study that examines factors relating to 0-year olds, may often involve interviews with parents or ECEC staff. These will then be the informants in the study, while the study considers the 0-year olds as the subjects.

Purpose

Figure 8 provides an overview of study purposes in 2018, 2019 and 2020.

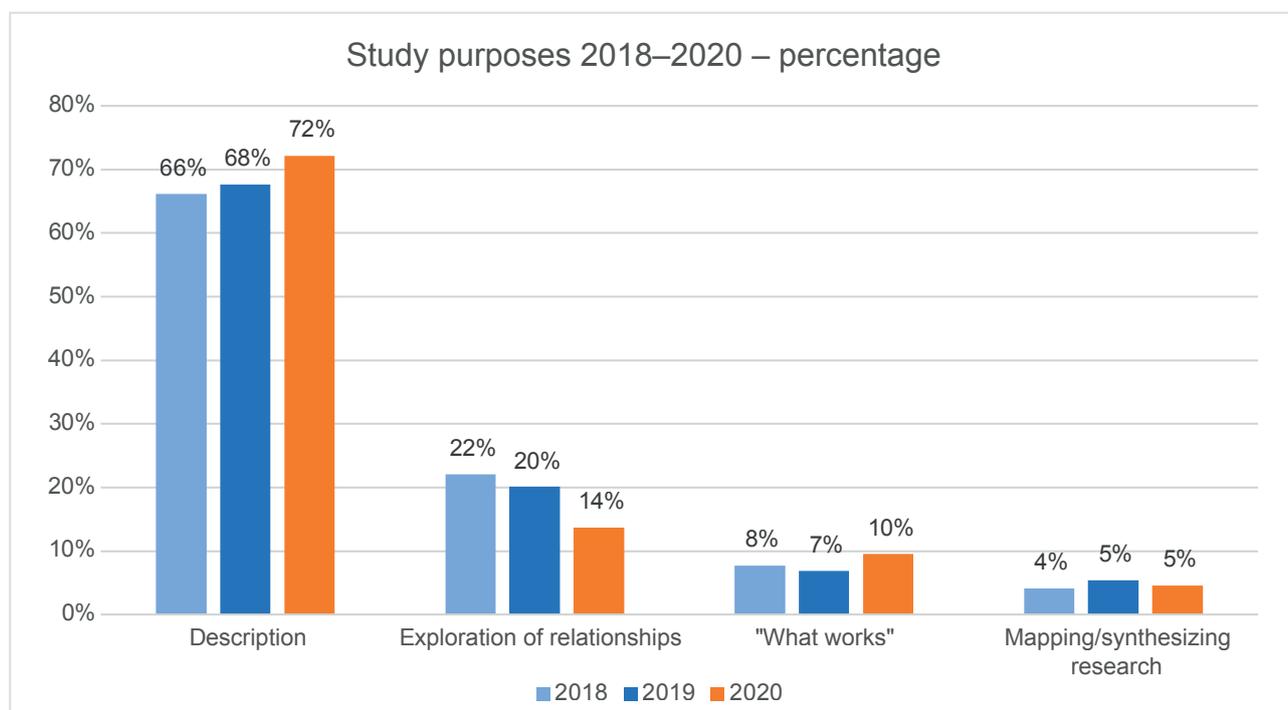


Figure 8: Study purposes for 2018, 2019 and 2020. It is only possible to provide one response for a single study.

We can see from 2020 that the clear majority of the studies still have the purpose of *describing*, with no less than 158 studies (72% of the total number of included studies), having this purpose, which is an increase of 4 percentage points since 2019 and 6 percentage points since 2018. One example of such a descriptive study is a study that looks at how Norwegian ECEC employees con-

sider the quality of interactions with children. Descriptive studies have clearly been the dominant purpose of included studies since 2006. There was a significant decline in this category from 2017 to 2018 (Figure 5 of Furenes et al, (2022)), but since then the number of descriptive studies has increased again, even though the proportion has not quite reached previous levels.

In 2020, 14% (30 studies) of the included studies had the purpose of *exploring relationships* between variables. This is a decrease from previous years, when we saw that the proportion of studies exploring relationships was 22% and 20% for 2018 and 2019 respectively. One example of this type of study is a study looking at the correlation between children's play skills and maths skills.

Furthermore, 10% (21 studies) of the studies in 2020 had the purpose of looking at *what works*. This type of study examines cause-and-effect relationships/causality and typically deals with the effect of initiatives. One example of this is a study looking at the effect of learning to add and subtract in preschool using finger patterns. There has been a small increase of 1-2 percentage points in this category compared to the previous two years.

The category with the fewest studies for 2018, 2019 and 2020 is *mapping/synthesizing research*, with 4%, 5% and 5% respectively of the studies listing this as their purpose. Here, we find studies that review and/or synthesize the results of previously published research works on a given topic, research problem or research question. One example is a systematic review looking at the various paths to reading comprehension in preschool. As indicated by the figures, there has been little change to the latter category in the last three years.

Topic

Figure 9 provides an overview of the subjects or topics the studies address. As a study can cover multiple topics, it is possible to report multiple topics for a single study. In 2020, we can see that the majority of studies addressed the topic *teaching and learning* (45%) and that there has been an increase in this category since 2018 (up 1 percentage point) and 2019 (up 7 percentage points). *pedagogical practices* is the category with the second most studies (41%) and here we can see that there has been a small decline since 2018 (down 2 percentage points).

Furthermore, the figure shows that the topics *organisation and management*, *play practices*, *perspective of the child*, *day-care quality*, *equal opportunity*, *methodology* and *curriculum* each represent 10-15% of this overview. We cannot see any major changes in these categories other than *methodology*, for which the proportion has more than doubled in the last two years (from 4% to 10%). We can otherwise see that there has been a small decline in 2020 in studies addressing the topics *equal opportunities* and *curriculum*. A smaller proportion of studies (5-9%) report on the topics *technology and ICT*, *policy*, *health*, *evaluation and assessment* and *children's physical action and development in day care*. Here, we can see a near doubling of studies within *technology and ICT* since 2018 (a steady increase from 5% in 2018 to 9% in 2020), as well as more than a halving in *evaluation and assessment* since 2018. The latter has gone down from 11% in 2018 to 6% in 2019 and 5% in 2020. The categories with the lowest proportion of studies in 2020 (0-4%) are *transition from day-care to school*, *classroom management*, *teacher career* and *economy*. There have been minor changes to these categories in recent years. It is worth noting that none of the studies in 2020 looked at matters relating to economy.

26% of the studies from 2020 were also coded as 'other' topics, which represents a decline of 2 percentage points compared to 2018, but an increase of 2 percentage points compared to 2019. In 2020, this category included topics such as language and communication, interaction, collaboration with parents/school, physical contact, gender, ethics, sustainability, special needs education, as well as various issues relating to the coronavirus pandemic.

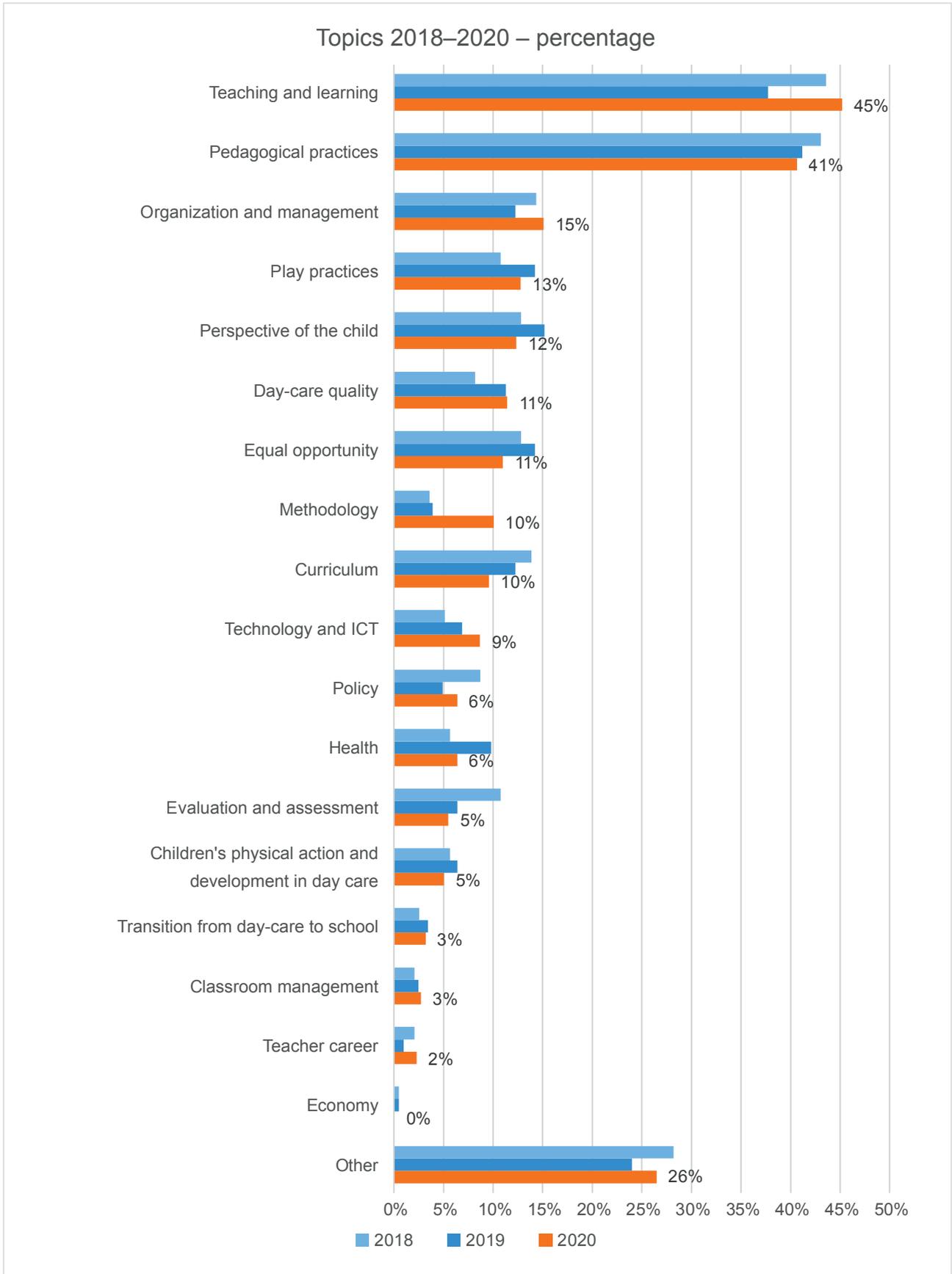


Figure 9: Study topics for 2018, 2019 and 2020. It is possible to provide multiple responses for a single study.

Who informs the studies?

Figure 10 presents an overview of the different groups registered as informants in the studies included from 2018 to 2020.

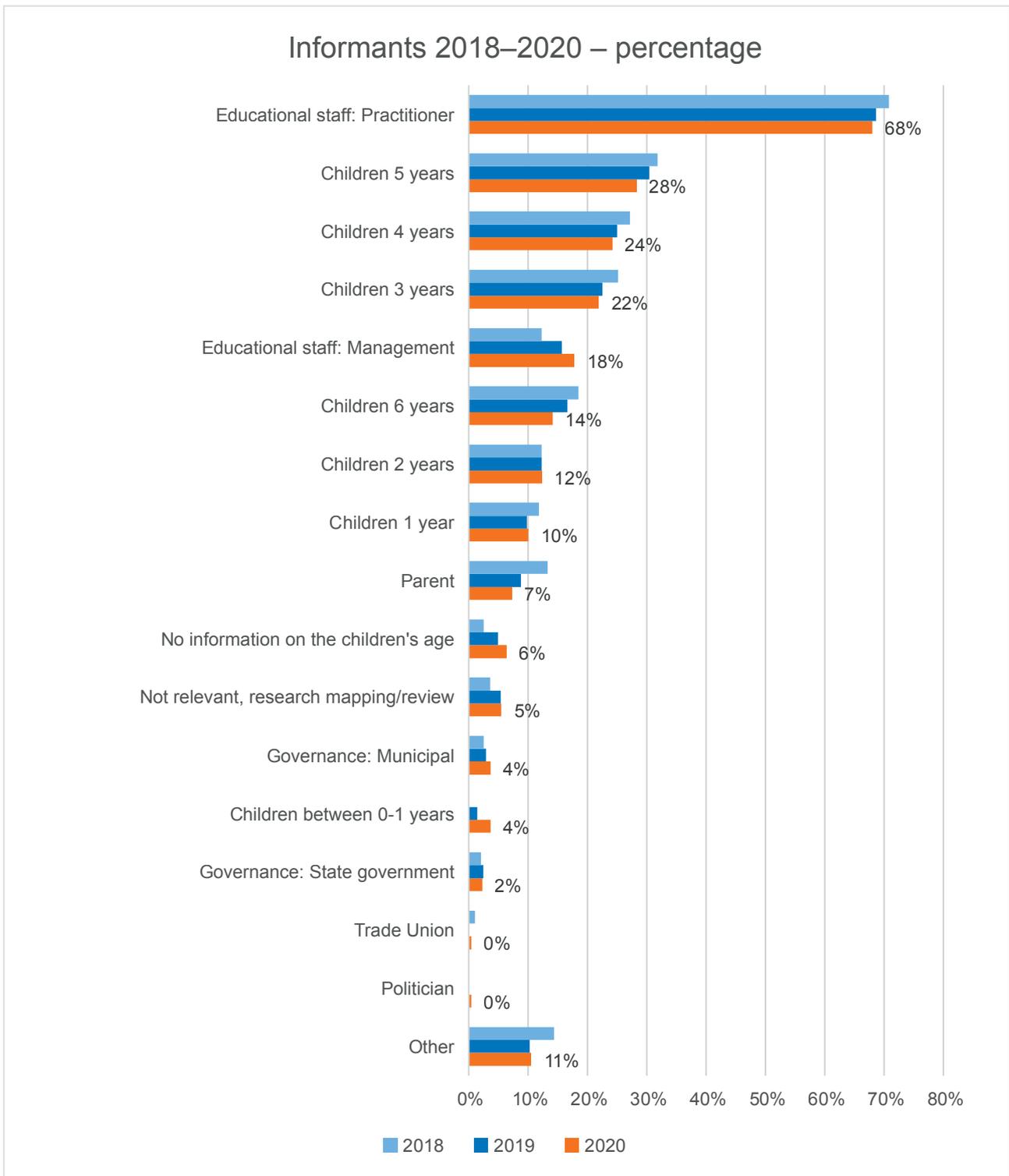


Figure 10: Percentage distribution of groups providing information for the studies in 2018, 2019 and 2020. It is possible to register multiple informant groups for a single study. Figures from 2018–2019 have been obtained from Furenes et al (2022). The percentage for 2020 is shown on the data label.

We can see from the figure that the *educational staff: practitioners* group is most commonly used as informants in Scandinavian ECEC studies. In 68% of the studies in 2020, compared to 69% in 2019 and 71% in 2018, practitioners are listed as the study informants. Study informants were not registered for studies predating 2017. Children in general (all age groups, including those for which no age has been specified) are informants in 47% of the included studies in 2020. Another group used as informants (in 18% of the studies) are ECEC managers. Here, there has been a notable increase in recent years, up from 12% in 2018 to 16% in 2019 and 18% in 2020. In 2020, parents were used as informants in 7% of studies. This constitutes nearly a halving from 2018, when the proportion was 13%. The *other* category has seen a small reduction in the last year. In the 2020 review, we here find studies with informants referred to as: Schools, the researcher, local authority data, historical documents, policy documents, public documents (national curriculum, regulations), public statistics, special educational needs coordinators (SENCOs), artists, student teachers, kitchen staff, healthcare workers, librarians and older children.

Figure 11 provides a more specific overview of the age groups of children used as study informants. This means studies where observations or interviews of children have been included as part of the basic data.

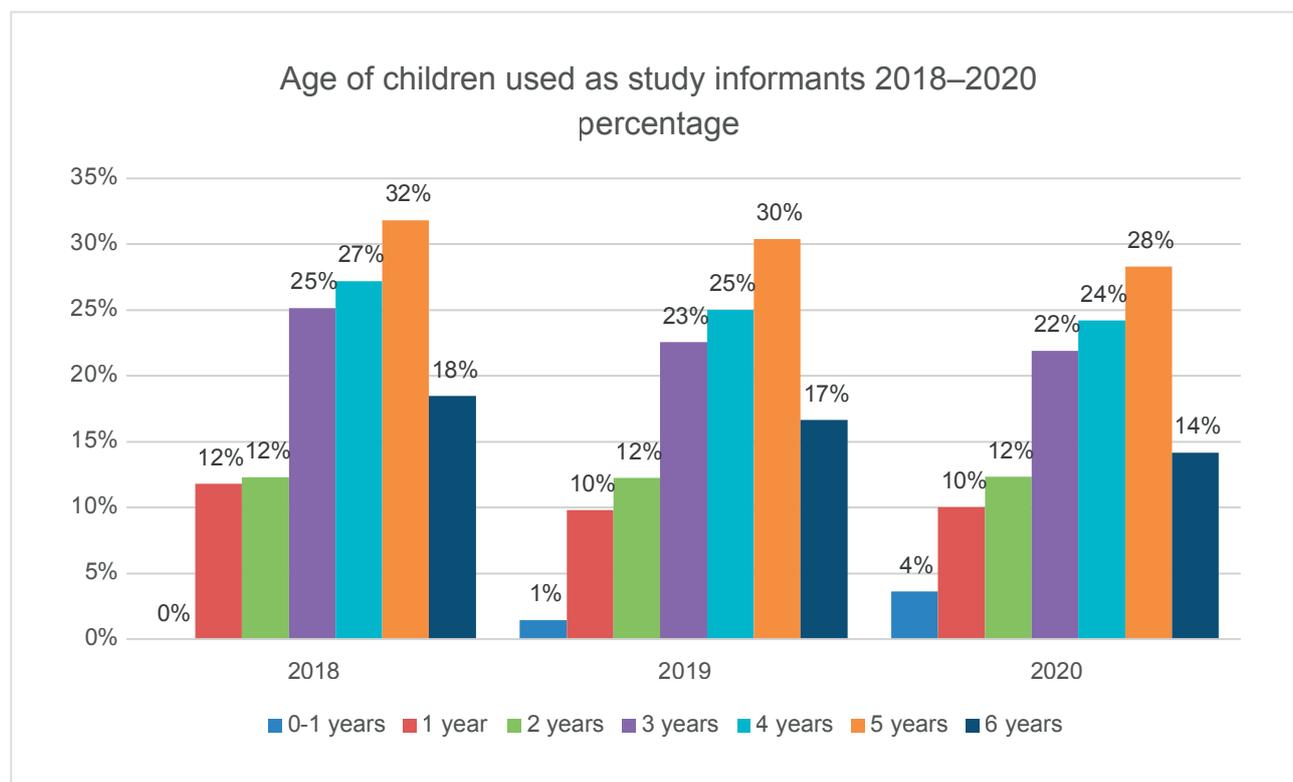


Figure 11. Age of children used as study informants from 2018–2020 as a percentage of all included studies. It is possible to register multiple age groups for a single study. Figures from 2018–2019 have been obtained from Furenes et al (2022)

The oldest children (3–6 years) in ECEC were most commonly used as informants in the studies included for 2018, 2019 and 2020. Of these, five-year olds were used in 28% of the studies, while four-year olds, three-year olds and six-year olds were used in 24%, 22% and 14% of the 2020 studies respectively. There has been a slight percentage decline for all these age groups groups for the year 2020 compared to previous years. At the same time, in 2020 we have seen a quadrupling in the percentage of studies with informants in the 0–1 year category compared to 2019, as well as no changes to the categories of one-year olds and two-year olds. We also find that there has been

an increase in the proportion of studies that use children without specifying their age in 2020 and that this has doubled from 2018 to 6% in 2020.

Another trend to be aware of is the gradual decline in studies using six-year olds (from 18% in 2018 to 14% in 2020). Some of these studies focused on preschool children or the Swedish pre-school class, while others looked at children in ECEC across different age groups in the study, including six-year olds.

3.5 Assessment of quality in early childhood education and care research

Research quality has been assessed based on predefined criteria and has been coded as high, medium or low. The criteria for achieving high or medium quality is based on whether the study reports using sufficient transparency related to data collection methods, analysis methods and the description of the sample selection and recruitment. This therefore constitutes an assessment of transparency and whether researchers are able to answer the research questions as described through the study to form the basis for the assessment of research quality.

In 2020, 70 studies have been assessed as high quality, 99 studies have been assessed as medium quality and 50 studies have been assessed as low quality. In Figure 12, which shows the percentage distribution of studies across the three quality categories, we can see that the majority of studies were assessed as medium quality in 2018, 2019 and 2020. Nevertheless, in 2020, there has been a slight decline (4 percentage points) in the proportion of studies of medium quality. Furthermore, we have also found that 23% of the included studies have been assessed as low quality, which is the same proportion as in 2019 but 6 percentage points lower than in 2018. The proportion of studies assessed as high quality has increased by 4 percentage points in 2020 compared to 2019 and 8 percentage points compared to 2018. The decline in the proportion of studies assessed as medium quality in 2020 therefore corresponds to the increase in the proportion of studies of high quality. The trend in recent years therefore shows that there are more and more studies of high quality (from and including 2017, see Figure 8 in Furenes et al (2022)).

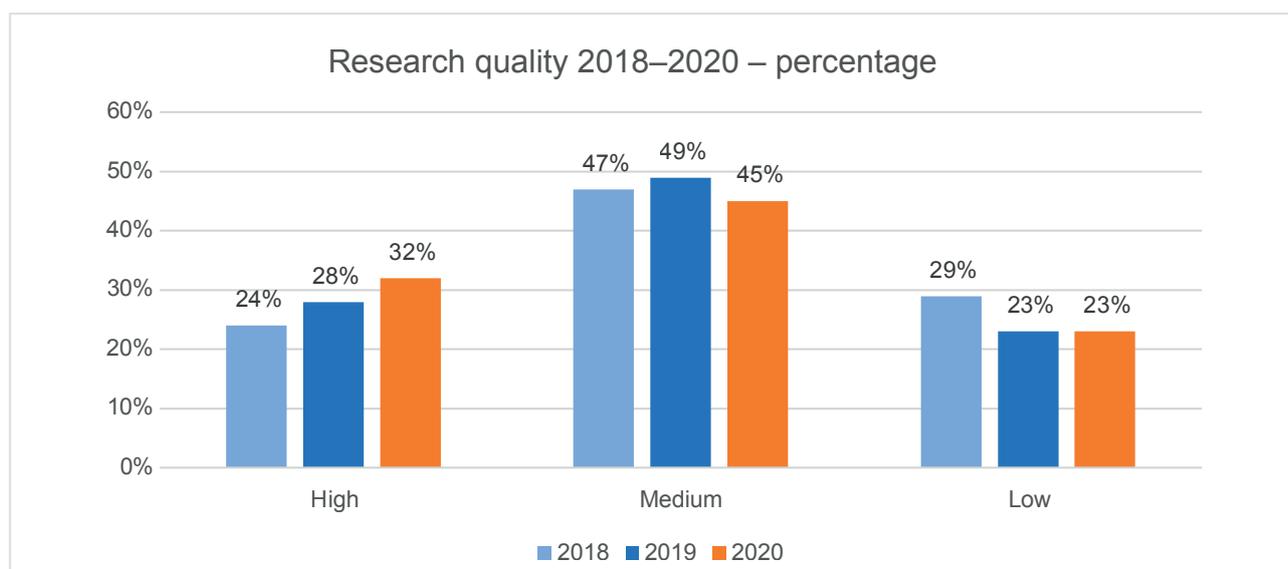


Figure 12. Overall assessment of the research quality of studies for 2018, 2019 and 2020. Only one assessment has been provided for a single study.

The proportion of studies of medium quality has been relatively stable at around 40 and 50% since 2008 (with the exception of 2016) and this year's review shows that the proportion remains within this range. The proportion of studies of high and low quality has historically fluctuated significantly

over the years since the database was established (Figure 8 in Furenes et al (2022)). In summary, we can say that this year's review shows a general increase in the quality of Scandinavian ECEC research compared to 2018 and 2019. This is a trend that is continuing from the "low point" reached in 2016, when there was a historically high proportion of studies of low quality and a low proportion of studies of high quality.

Possible explanations for this year's trend, in addition to an actual increase in quality, could include minor changes to the inclusion criteria (exclusion of licentiate theses and article-based theses), as well as changes to the composition of the expert panel, which could affect the interpretation and application of the assessment criteria. However, it is also likely that there has been a development in the quality of the implementation and reporting of studies. With a greater proportion of studies published in international journals, there could also be stricter requirements for publishing, which is in turn reflected in the quality.

Appendices 6-10 show that there are certain differences in the assessed quality depending on the publication type, research method, purpose, language and country. We can, for example, see that articles published in journals and theses (little data available for the latter) appear to maintain a higher quality than studies presented in other formats. This might not be so surprising, as scientific journals often have more thorough peer-review processes and stricter publication criteria. The same is largely true for theses. We also see that qualitative studies generally have a lower proportion of studies assessed as high quality compared to quantitative studies, reviews and studies using mixed methods. This could be linked to the somewhat different traditions for methodological reporting in the various research methods. Quantitative studies have generally had a greater focus on transparency and reproducibility, which will have a positive outcome on the assessments in this review. Finally, we must also note the differences in quality assessments based on language and country. Here, we can see that the quality of English articles is significantly higher compared to articles published in Scandinavian languages. A large proportion (84%, 125 of 149 studies) of the studies written in English achieve high or medium quality. The corresponding proportion for articles in Swedish, Norwegian and Danish, overall, is 63% (44 of 70 studies assessed as high or medium quality). Studies conducted in Norway and Sweden generally appear to be assessed more positively than studies conducted in Denmark. Possible reasons for the higher quality assessments for English language articles could include stricter criteria and a narrower selection process for publication in international journals compared to Scandinavian journals. With regard to differences in quality assessments based on country, this could potentially be linked to differences in methodological traditions or the trend of publishing via international journals, but we have investigated this further in this report!

4. Summary and conclusion

The 2020 review shows that there is still an **increase** in the number of publications relating to Scandinavian ECEC research. This trend can be observed all the way back to when the database launched in 2006. For 2020, we have included 219 studies addressing ECEC in Scandinavia and 169 of these have been assessed as medium or high quality. This indicates increasing research activity and more active researchers. This year's report also shows a positive trend in which more studies achieve high quality and that studies of low quality have not increased compared to previous years. More studies overall, combined with more studies of high quality, represents promising news for Scandinavian ECEC research and could indicate that the field is experiencing positive quality developments. Nevertheless, it is still somewhat concerning that, as in 2019, nearly one quarter of studies failed to meet the most basic requirements for good research reporting.

Sweden continues to contribute to the most studies in the review, but, by percentage, this figure has declined slightly. It is Norway that mostly accounts for the increase in studies in 2020 and the country now contributes to 37% of the studies. This could indicate that the Norwegian research community on ECEC has been strengthened, through more researchers and/or increased research activity. Otherwise, we find that the increase in the proportion of studies published in English continues from previous years. This could testify to increasing internationalisation of research, a trend that is observed in most research fields. We also see that studies published in English are assessed as being of higher quality compared to studies written in Scandinavian languages.

With regard to research methods, the 2020 findings indicate that quantitative methods are increasingly used, while we also see a decline in the use of qualitative methods. ECEC research has traditionally been characterised by a large proportion of qualitative studies and it is clear that a lot of the expertise among many researchers can be found in the field of qualitative methodology. This may mean that many ECEC researchers are more comfortable with qualitative study design and may be reluctant to use quantitative methods. This year's review may indicate that this trend is about to change, even though qualitative methods remain highly dominant. Methodological diversity may indicate greater diversity in the type of questions that are asked and this could be a positive trend for the ECEC field. At the same time, we can see that there is a clear preponderance of studies using observation, video or field notes, as well as various interview types, as the data collection method. These are typical methods used in qualitative studies and can be viewed in the context of the still significant dominance of qualitative studies in ECEC research. In 2020, just as in 2018 and 2019, there are very few studies using various tests that are more commonly used in quantitative studies. This may be linked to the still relatively low proportion of quantitative studies in the review.

The topics for which there are clearly most studies in Scandinavian ECEC in 2020 are, just as in previous years, *teaching and learning* and *pedagogical practices*. There are some variations year on year in these categories. The marked increase in the topic *methodology* is interesting and may testify to a greater focus on the evaluation of various methodologies used in ECEC. At the same time, we can see a significant decline in the number of studies on the topic of *evaluation and assessment*, which could indicate a declining focus on evaluation and assessment in ECEC.

Another finding to highlight from this year's review is the age of the children observed and interviewed. Previously, there have been very few studies using the youngest children as informants, but we can see that such studies increased remarkably in 2020. This does perhaps testify to an increased interest in the age group and a desire to improve everyday life in ECEC for this group. Another reason for the increase may be that there is an increasing number of children in this age

group in ECEC in Scandinavia and that this age group is therefore increasingly used as informants in ECEC studies.

Overall, we can conclude that there has been a positive development in ECEC research in 2020, given the increase both in the number of publications and the number of studies assessed as high quality. Norway has significantly increased its contributions in this year's review, while we can also see that more of the research is published in English. ECEC research remains characterised by qualitative studies and methodologies, but this year there is a greater proportion of quantitative study designs, which represents a positive trend when it comes to the diversity of the research questions asked. Another positive development is the fact that the youngest children are now more involved in research and the distribution between age groups in the studies is slightly less biased towards the oldest children.

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Bondebjerg, Anja; Jusufbegovic, Lana; Qvortrup, Lars; Vestergaard, Stinna (2019) *Forskningskortlægning og -vurdering af skandinavisk dagtilbudsforskning for 0-6-årige i året 2017*. Dansk Clearinghouse for Uddannelsesforskning

Furenes, May Irene; Reikerås, Elin Kirsti Lie; Moser, Thomas; Munthe, Elaine (2022) *Trender i empirisk barnehageforskning i de skandinaviske landene 2006-2019 - en forskningskartlegging*. Knowledge Centre for Education, University of Stavanger

Appendices

Appendix 1 Project employees

The following people were responsible for screening on title, abstract and full text

Astrid Gulbrandsen, Knowledge Centre for Education, University of Stavanger

May Irene Furenes, Knowledge Centre for Education, University of Stavanger

Elaine Munthe, Knowledge Centre for Education, University of Stavanger

Nina Kalvatn Friestad, Knowledge Centre for Education, University of Stavanger

The following people were responsible for coding and quality assessment:

Astrid Gulbrandsen, Knowledge Centre for Education, University of Stavanger

May Irene Furenes, Knowledge Centre for Education, University of Stavanger

Elaine Munthe, Knowledge Centre for Education, University of Stavanger

Nina Kalvatn Friestad, Knowledge Centre for Education, University of Stavanger

Serap Keles, Knowledge Centre for Education, University of Stavanger

Simen Egenæs Birkedal, Knowledge Centre for Education, University of Stavanger

Sara Esmaeeli, FILIORUM, University of Stavanger

Appendix 2 Search string:

We have followed the same protocol as in previous years. We changed the English search terms in 2018.

The following words have been used for searches in national and international databases:

Norwegian search terms: Barnehage OR familiebarnehage

Swedish search terms: Daghem OR förskola OR dagtilbud OR daginstitusjon OR leksskola OR förskolepedagogik OR familjedaghem OR dagis OR pedagogisk omsorg OR öppen förskola

Danish search terms: Dagleje OR vuggestue OR småbørnspædagogik OR børnehave OR integrerede institutioner

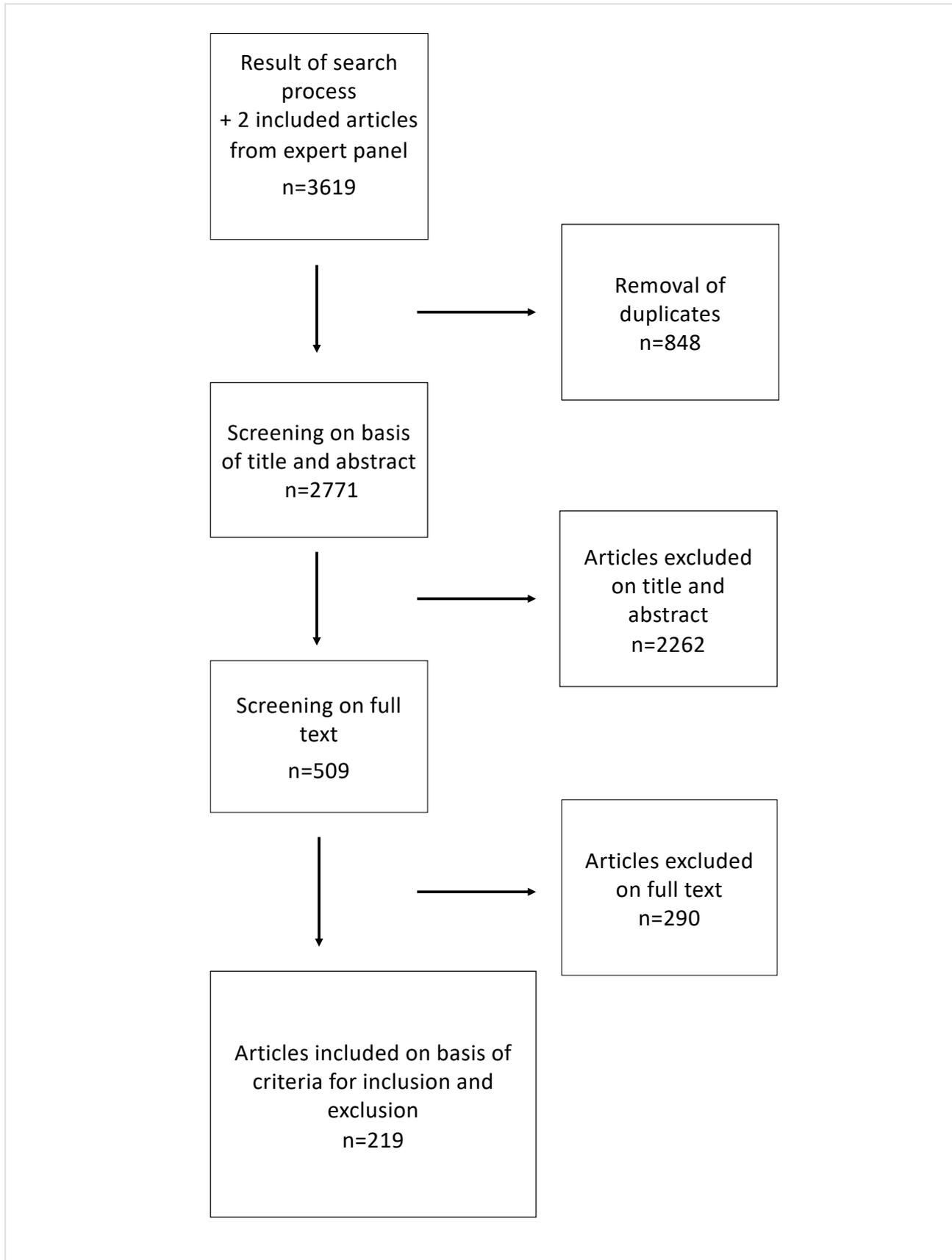
English search terms: «child care center» OR «child care centre» OR «child development center» OR «child development centre» OR «child* academic development» OR «crèche» OR «day care» OR «daycare» OR «day-care» OR «early child* care» OR «early child* education» OR «early child* intervention*» OR «early child* program*» OR «early child* services» OR «early education* provision» OR ecc OR ecec OR ece OR kindergarten OR «nursery school» OR «pre K» OR «pre kindergarten» OR «pre school» OR «pre-K» OR «pre-kindergarten» OR «pre-primary education» OR «preschool» OR «pre-school» OR toddler*) AND GE (norway OR sweden OR denmark). Limiters - Peer Reviewed; Date Published: 20200101-20201231; Journal or Document: Journal Article (EJ); Language: English Search modes - Boolean/Phrase

Appendix 3 Overview of databases and number of hits:

Source	Search date	Hits 2018	Hits 2019	Hits 2018-2019	Hits 2020
Barn*	28/04/2020	7	11	18	16
Bibliotek.dk	28/04/2020	273	268	541	297
DIVA	Only Scandinavian searches	496	536	1032	67
Eric	06/04/2020	64	53	117	127
Forskningsdatabasen.dk	CEASED	124	143	267	
Idunn	29/04/2020	19	4	23	7
Libris	28/04/2020	230	83	313	65
NAFOL	28/04/2020				6
NORA	28/04/2020	20	29	49	32
NORART	COVERED, ORIA	82	54	136	
Nordisk barnehageforskning	DISCONTINUED	2	1	3	
Nordisk tidsskrift for Pedagogikk og Kritikk*	28/04/2020	5	0	5	3
ORIA	29/04/2020	194	171	365	309
Paideia	03/05/2020	2	2	4	5
Pædagogisk Psykologisk Tidsskrift	NO ACCESS	1	2	3	
SwePub	28/04/2020	293	316	609	262
Scopus	06/04/2020	1812	1662	3474	1824
Web of Science	06/04/2020	124	145	269	597
Included from expert panel suggestions					2
Total				7238	3619

Sources highlighted using * were searched manually

Appendix 4 Summary of the search and screening phase

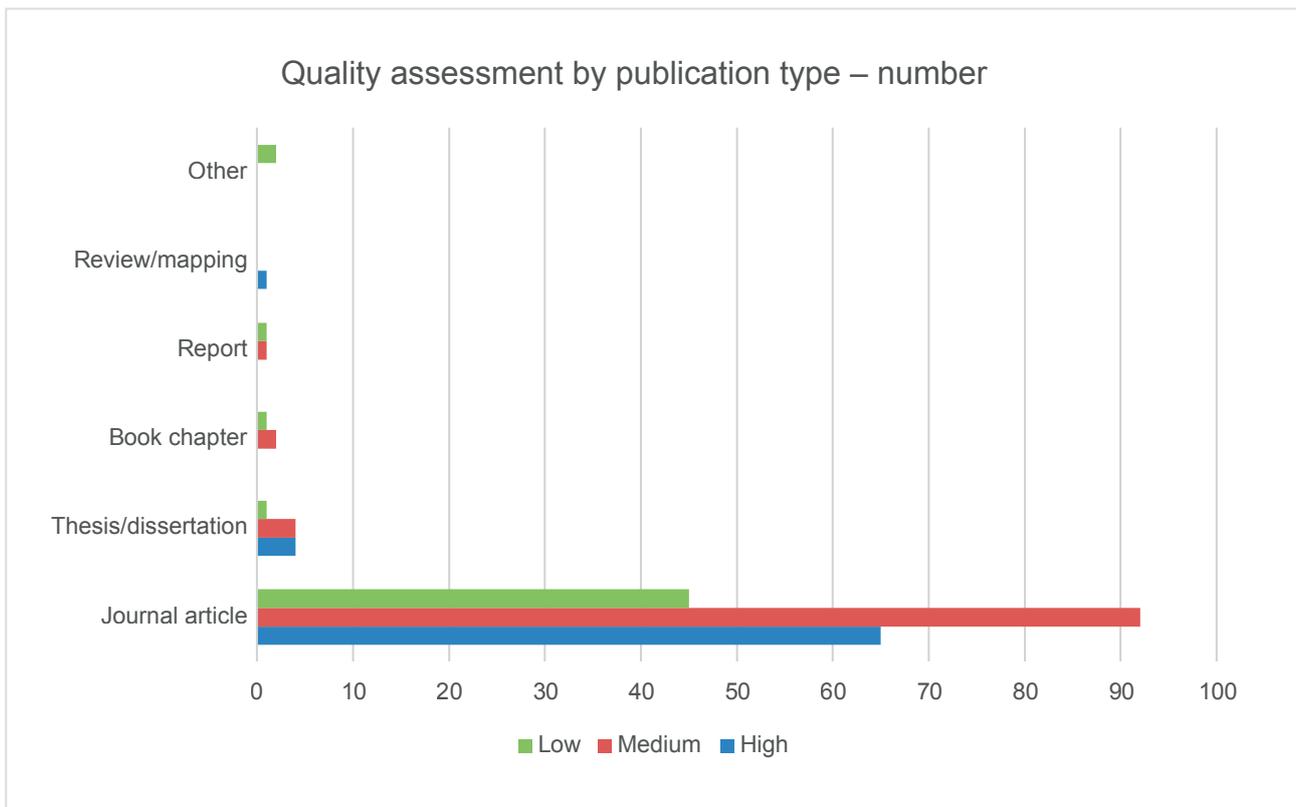


Appendix 5 Overview of the reasons for excluding articles

Reason	Title and abstract	Full text	Total
Publication year	52	37	86
Country	115	12	125
Target group	70	5	75
Topic	1897	54	1946
Evidence	24	47	70
Publication type	104	42	140
Full text unavailable/not received by deadline		27	27
Duplicate		66	66
TOTAL	2262	290	2552

Please note that a study *may have* multiple grounds for exclusion and that not all possible exclusion criteria will necessarily have been registered.

Appendix 6 Quality assessment by publication type 2020



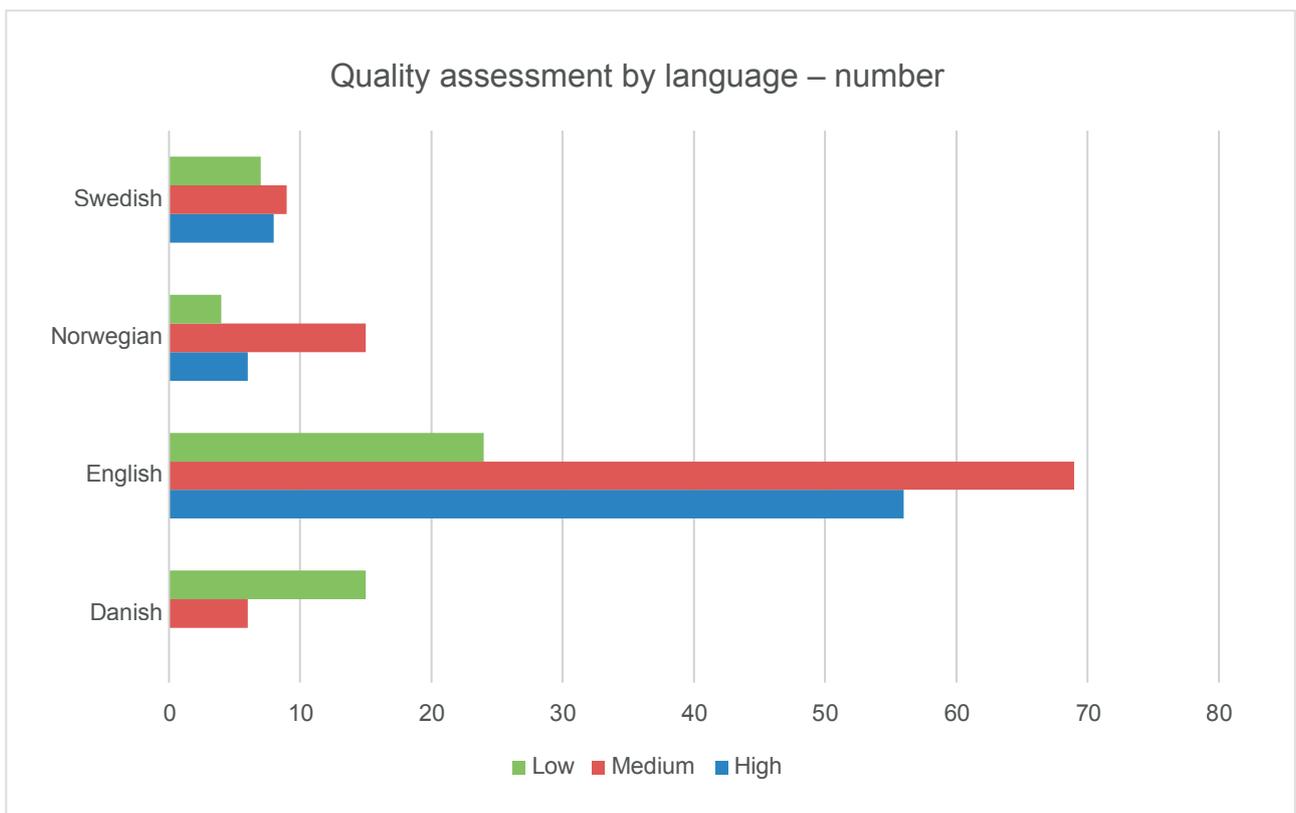
Quality assessment by publication type 2020. Only one assessment has been provided for a single study.

Appendix 7 Quality assessment by method 2020



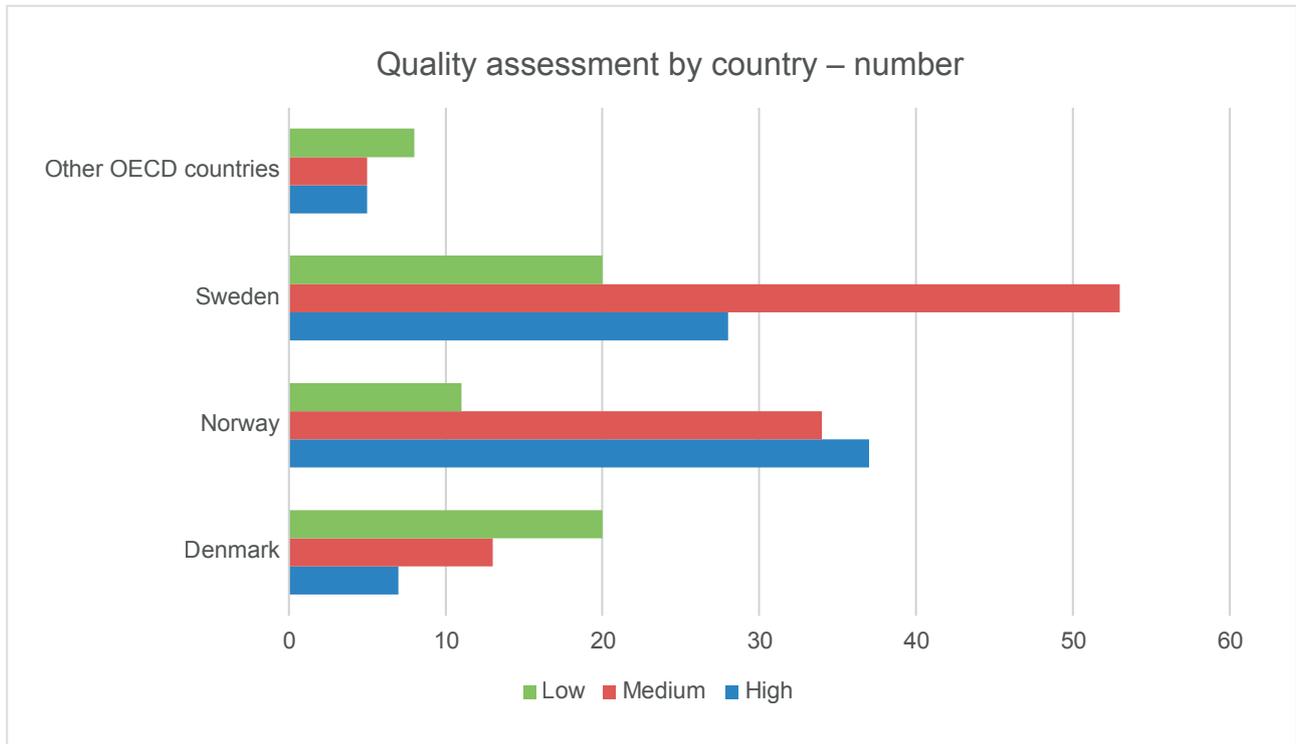
Quality assessment by method 2020. Only one assessment has been provided for a single study.

Appendix 8 Quality assessment by publication language 2020



Quality assessment by publication language 2020 Only one assessment has been provided for a single study.

Appendix 9 Quality assessment by country for 2020



Quality assessment by study country 2020. Only one assessment has been provided for a single study.

Appendix 10 Quality assessment by study purpose 2020



Quality assessment by study purpose 2020. Only one assessment has been provided for a single study

Appendix 11 List of all 219 studies included for 2020 (high, medium and low quality)

- Ackesjö, H & Persson, S. (2020). Från den omogna sexåringen till den skolpliktiga förskoleklasseleven: en dokumentanalys av sexåringen i det svenska utbildningslandskapet från 1940-tal till i dag. *BARN-Forskning om barn og barndom i Norden*, 38(1), 71-88.
- Adbo, K & Carulla, C. V. (2020). Learning About Science in Preschool: Play-Based Activities to Support Children's Understanding of Chemistry Concepts. *International Journal of Early Childhood*, 52(1), 17-35.
- Ahmed, A. Hammarstedt, M & Karlsson, K. (2020). Do Swedish schools discriminate against children with disabilities? *IFN Working paper No. 1330*.
- Ahrenkiel, A., Eilenberg, L. Ø., & Holm, L. (2020). Det upåagtede børnesprog : en kvantitativ og kvalitativ analyse og diskussion af peer talk i en daginstitution. *Viden om literacy*, 28, 6-12.
- Alstad G. T., Randen, G. T. & Aasen, S. F. (2020). Læreroppfatninger om endring - en studie av barnehagelæreres perspektiver på språkdidaktisk utviklingsarbeid. *NOA : norsk som andrespråk*, 36(2), 43-64.
- Alvinus, A. & Svensén, S. (2020). Prekariserande arbetsförhållanden? En kvalitativ studie om upplevda negativa organisatoriska arbetsvillkor inom barnomsorgen. *Arbetsmarknad & Arbetsliv* 26(4), 46-64.
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- Aslanian, T. K., Andresen A. K. H. & Baasland, T. (2020). Climbing, hiding and having fun: Schoolchildren's memories of holistic learning in a norwegian kindergarten. *Nordic Studies in Education*, 40(3), 268-285.
- Aslanian, T. K. (2020). Every rose has its thorns: Domesticity and care beyond the dyad in ECEC. *Global Studies of Childhood*, 10(4), 327-338.
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- Backman, A. (2020). Shadow in children's picturebooks: highlighting children's perspectives. *International Journal of Early Years Education*, 1-16
- Bartholdsson, Å. & Kronlund, M. (2020). "Du måste ha en röd spade": Tricksters, minipolitik och sociala relationer i förskolan. *BARN-Forskning om barn og barndom i Norden*, 38(1), 11-21.
- Basse, L. (2020). På sporet af en legende og multi-modal literacypraksis i vuggestuen. *BARN-Forskning om barn og barndom i Norden*, 38(4), 35-51.
- Baustad, A. G. & Bjørnstad, E. (2020). Everyday interactions between staff and children aged 1-5 in Norwegian ECEC. *Early Years*, 42(4-5), 557-571
- Baustad, A. G., Rønning, W. and Bjørnstad, E. (2020). Norwegian ECEC staff's thinking on quality of interaction. *Early Child Development and Care*, 190(12), 1969-1982.
- Bergem, H. (2020). Barns erfaringer rundt mening og sammenheng i barnehagehverdagen: en analyse av tematisk innhold i samspillet mellom barn og barnehagelærer. *BARN-Forskning om barn og barndom i Norden* 38(1), 55-69.
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