



Empirical Research on Scandinavian Early Childhood Education and Care in 2022 and 2023

Review of research and assessment

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Distribution: Knowledge Centre for Education,
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<https://www.uis.no/nb/forskning/kunnskapssenter-for-utdanning>
Telephone: 51 83 00 00

Photo: Getty Images.

Report No. 1/2025, Knowledge Centre for Education
ISBN 978-82-8439-329-2

PUBLISERT:

REFERENCE: Guldbrandsen, A., Ree, M., Friestad, N.K., Helgøy, K.V., Klippen, M.I.F., Thijssen, M.V.P., Forsström, S.E. & Njå, M.B. (2025). *Empirical Research on Scandinavian Early Childhood Education and Care in 2022 and 2023; Review of research and assessment*. Report No. 1/2025, Knowledge Centre for Education, University of Stavanger

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Foreword

This report is the fourth in a series of reports on Scandinavian early childhood education and care research for which the Knowledge Centre for Education (KSU), in collaboration with FILIORUM (Centre for Research in Early Childhood Education and Care), has been responsible. The work has been financed by the Ministry of Education and Research (Norway), the Norwegian Directorate for Education and Training (Norway) and the Knowledge Centre for Education.

The work on reviewing Scandinavian empirical ECEC research began in 2006. The Knowledge Centre for Education has been responsible for the review since 2020. In order to ensure the best possible basis for comparison, we have focused on carrying out the review and assessment in accordance with the standards stipulated at start-up in 2006. The NB-ECEC database, where the research is collected and made available, provides unique access to Scandinavian early childhood education and care (ECEC) research, and is an important source of insight for ECEC teachers, coordinators, ECEC student teachers and ECEC teacher educators. The database also provides important insight into research that is of importance to managers in the public and private sectors.

Thank you for entrusting us with this assignment. We would also like to thank employees from FILIORUM and KSU who have contributed to the review, assessment and summary writing, the Scandinavian expert panel for their contribution regarding quality assurance of the work, and last but not least, a heartfelt thank you to Astrid Gulbrandsen and Marianne Ree who have led the work on reviewing and assessing Scandinavian ECEC research for the year 2022-23, in close collaboration with Nina Kalvatn Friestad and May Irene Furenes Klippen.

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Summary

The review of Scandinavian ECEC research for 2022 and 2023 still shows great activity in the field, with a significant increase in the number of studies for 2022, while 2023 is on par with 2021. Overall, there has been an increasing trend in the number of studies since 2006. In 2022, 290 studies were included, with 43% assessed as medium quality, 33% as high quality, and 24% as low quality. This shows a moderate increase in the quality of the studies from 2021. There were 256 studies in 2023, with assessments nearly identical to those in 2021. This indicates a relative decrease in quality from the 2022 level. Over the past six years, the distribution between quality categories has been stable with slight variations. The distribution between countries shows that Denmark has increased its proportion of studies from 2021 to 2023 by 5 percentage points, while Sweden has seen a decrease of 7 percentage points. Sweden published the most studies in both of the reviewed years (44% in 2022, 41% in 2023), closely followed by Norway (41% in 2022 and 39% in 2023). Denmark had the lowest proportion with 19% in 2022 and 23% in 2023. The proportion of studies in English has declined somewhat from 73% in 2021 to 69% in 2023, while the proportion of studies in Norwegian and Danish has increased.

In terms of methodology, many studies are now using qualitative methods, while the use of quantitative methods has decreased. In 2023, six times as many studies used qualitative methods as quantitative methods. The use of observation and questionnaires for data collection has also decreased. However, the 'other' category, which often involves photography, has increased.

The purpose of the studies is largely descriptive, with 72% in 2022 and 76% in 2023. The proportion of studies exploring relationships between variables or effects of interventions is low, which may be due to such studies being resource-intensive in an ECEC context. Most of the studies deal with teaching and learning, pedagogical practice and methodology (pedagogical/didactic method of work). Studies on topics related to ECEC teachers and institutional structures have increased, while research on children's experiences shows somewhat weaker development. Practitioners are still most often the subjects of studies, while the proportion of studies about children has decreased. Practitioners also dominate as informants, although there is some decline since 2021. The use of children as informants shows no clear developmental trend.

Overall, the review shows small changes in the assessed quality of Scandinavian ECEC research. As in previous years, journal articles and dissertations are assessed higher than book chapters and reports, and quantitative studies and English language studies are assessed as having higher quality. Like previous years, more studies from Sweden and Norway are assessed as medium or high quality compared to studies from Denmark.

In summary, the trends for 2022 and 2023 show that Scandinavian ECEC research is growing in scope, with quality distribution at the same level as previous years. There is an increase in the number of descriptive studies and an increase in the use of qualitative methods, while the use of quantitative methods and English-language publications has decreased. Denmark has increased its proportion of the studies, while Sweden's proportion has decreased. At the same time, a decline is observed in studies focusing on children, as well as a reduction in the proportion of studies published in English. The research continues to have a strong focus on practitioners, but the use of the youngest children as informants has increased, although they are still underrepresented in the studies.

1 Introduction

1.1 Background

This year's report presents a research review of Scandinavian empirical research on ECEC available to children between the ages of 0 and 6 years published in 2022 and 2023. In addition to reviewing ECEC research in these years, the report will also compare findings from previous years, with a particular focus on 2021 (the most recently published report). We have also included some historical perspectives in the text to better highlight this year's findings and put them into context.

The review for 2022 and 2023 was carried out by the Knowledge Centre for Education (KSU), in collaboration with FILIORUM (Centre for Research in Early Childhood Education and Care), both at the University of Stavanger. The Knowledge Centre for Education is a national research centre with the mandate to conduct and disseminate systematic reviews that are relevant to the education sector as a whole. This review for 2022 and 2023 were commissioned by the Norwegian Ministry of Education and Research and have been funded by the Ministry of Education and Research (Norway), the Norwegian Directorate for Education and Training (Norway) and the Knowledge Centre for Education.

A panel of experts consisting of ECEC researchers from Denmark, Sweden and Norway has, as in previous years, assisted in the work on assessing the included studies. Since 2006, the NB-ECEC expert panel has been characterised by continuity. Since this report reviews two years of Scandinavian ECEC research, it has been necessary to expand the expert panel with eight additional professionals. We have recruited ECEC researchers based on advice from the expert panel and from researchers affiliated with FILIORUM. One criterion regarding the composition of the panel was to ensure that it collectively encompassed a large proportion of ECEC research with regard to content/themes, methodology and national affiliation. The expert panel for 2022 and 2023 has consisted of the following people (new members in italics):

- Professor Dorte Bleses, Aarhus University, Denmark
- Associate Professor Jan Thorshauge Frederiksen, University of Copenhagen, Denmark
- *Associate Professor Torben Næsby, University College of Northern Denmark, Denmark*
- *Associate Professor Anders Højen, Aarhus University, Denmark*
- Professor Ole Henrik Hansen, Jönköping University, Sweden
- Professor Camilla Björklund, University of Gothenburg, Sweden
- Professor Hanna Palmér, Linnaeus University, Sweden
- Professor Pia Williams, University of Gothenburg, Sweden
- *Professor Asta Cekaite, Linköping University, Sweden*

- *Professor Susanne Kjällander, Stockholm University, Sweden*
- *Professor Farhana Borg, Dalarna University, Sweden*
- *Professor Anne-Li Lindgren, Stockholm University, Sweden*
- Associate Professor Liv Ingrid Aske Håberg, Volda University College, Norway
- Associate Professor Karianne Franck, Queen Maud University College, Norway
- Researcher Lars Guldbrandsen, Oslo Metropolitan University, Norway
- *Professor emerita Trine Klette, (previously VID), Norway*
- *Senior Researcher Elisabet Solheim Buøen, Centre for Child and Adolescent Mental Health, Eastern and Southern Norway (RBUP East and South)*

In addition to the expert panel, six ECEC researchers from FILIORUM and nine researchers from the Knowledge Centre for Education helped to screen, code and assess the studies included in this research review. See Appendix 1 for a complete list of names.

1.2 Purpose

The primary purpose of the series of annual reviews of Scandinavian ECEC research is to make available the content and results of empirical research into early childhood education and care. The content and results of the research review are aimed at students, educators within the ECEC field, teachers, researchers, policy-makers, ECEC facility owners and others with an interest in Scandinavian 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 2022 and 2023. The Swedish preschool class is not part of the purpose of this review. Like previous NB-ECEC reports, this report also provides an overview of methodological and thematic aspects of ECEC research in Sweden, Norway and Denmark. Furthermore, the report provides both the field of practice and research with a comprehensive overview of available ECEC research. In addition to providing an overview of Scandinavian ECEC research for the years 2022 and 2023, the report will provide an overview of any developments and changes from the previous NB-ECEC review (2021). The Knowledge Centre for Education has also been responsible for writing brief summaries in Norwegian of all included studies considered to be of medium or high quality. These summaries have also been translated into English. The summaries will be published in the database ([Nordic Base of Early Childhood Education and Care, NB-ECEC](#)) so that they are available to relevant target groups. 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. This collaboration began in 2006. The database enables users to search for empirical Scandinavian ECEC research and identify studies that are considered to be of medium and high quality, organised within predefined categories. The studies are presented with brief summaries in Norwegian and English (most are also available in Swedish

and Danish). The database also provides access to reports summarising research findings from the Scandinavian countries, year by year, since 2006. The reports contain tables and the assessments of trends in Scandinavian ECEC research. As a result, the database is a key platform of knowledge for ECEC student teachers, ECEC teachers and coordinators, teacher education institutions, researchers and decision-makers at municipal and national levels. The NB-ECEC database is managed and maintained by the Danish Evaluation Institute (EVA).

2 The methodological basis of the research review

In this chapter, the methodological guidelines applied during the preparation of the 2022 and 2023 research review will be described, as well as the methodology behind the summaries. The summaries in this year's report are written with the help of artificial intelligence. This is a new method that has been adopted. 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 consists of the following phases: 1) systematic searches in relevant databases and manual searches in journals from 2022 and 2023, 2) screening of titles and summaries (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. In addition, the assignment involves (5) writing Norwegian summaries of the studies that are assessed as medium and high quality (performed by a dedicated team at KSU, see **Appendix 1**), and translation of these into English (carried out by an external actor).

2.1 Literature search

The review of Scandinavian empirical ECEC research published in 2022 and 2023 is based on a systematic search of databases and educational journals relevant to Scandinavian ECEC research. The studies included in this review are based on a systematic and transparent method. Due to an increase in the number of studies published in English, the search string from 2018 was expanded to include more synonyms for 'kindergarten' in English (Furenes et al. (2022)). The aim here was to identify relevant studies published in English. In addition, from 2018 onwards, searches were conducted in several international databases (Scopus and Web of Science) in addition to ERIC. Closures and the creation of Scandinavian databases have meant that it has not been possible to search the exact same databases for 2022 and 2023 as in previous years. To meet the requirements for systematics and transparency, search terms, databases, and the identification of studies are thoroughly explained in the annual research reviews (**Appendix 3**). For 2022 and 2023, searches have been conducted in the Scandinavian databases NORA (Norway), ORIA (Norway), Idunn (Norway), Libris (Sweden), DIVA (Sweden), SwePub (Sweden), Bibliotek.dk (Denmark) and Forskningsportal.dk (Denmark, new). Due to technical issues with the Scandinavian database DIVA, searches in this database are limited to Scandinavian terms for kindergarten, as well as targeted searches for monographs and reports using English search terms. In addition, we have searched the following international databases: ERIC, Scopus and Web of Science with English search strings. This choice is based on the fact that these three databases cover a wide range of ECEC research. **Appendix 2** provides a detailed overview of the search strings used in this review. **Appendix 3** provides a complete overview of the databases and journals searched, along with the number of hits.

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 review are essentially the same as those used in previous years and are described below:

Research: Research refers to the reporting of research and systematic knowledge production that contains, as a minimum, a research question or defined field of research, a methodology element and a conclusion. The research must also relate to existing theoretical or empirical research. As with reviews conducted in previous years, only educational and social sciences research relating to early childhood education and care has been included. This means that research relating to natural science and health science issues are not included in the review, even if such research deals with data generated in connection with 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 graduate level, as well as licentiate theses, are not included in this research review. Popular science presentations, textbooks, policy documents, anthologies, evaluations, experiment and development work, as well as research with a focus on the development of trials and methodologies, are also not included.

Year of publication: The study must be published within the calendar year of the investigated review. Since some studies are published on journals' own digital platforms before they are formally released in a journal issue (and receive a separate reference with the year of publication), there have been challenges related to establishing the actual year of publication. The same study may appear with two different publication years and potentially be identified in two separate reviews. In the previous review, we addressed this by choosing the year of issue as publication year, but accepted that studies not yet published in an issue were assigned the online publication year. Since we are closer to the review years this year and are also reviewing two years, we have had to adjust this strategy slightly for 2022 and 2023. We have chosen to use the online publication year, i.e., the first time the study was published, as the basis for coding/indexing the publication year. At the same time, we see that this has led to the inclusion of some retrospective entries from previous years, meaning studies that were not included because we previously chose the issue year as the starting point. Therefore, we decided to (1) use the online publication year as the general rule for an article's publication year, and (2) include retrospective entries from previous reviews in this year's review, but with the publication year set to the year of issue. This is done with the general aim of (1) avoiding delays in the publication of Scandinavian ECEC research in the NB-ECEC database and (2) ensuring that all published articles from previous years are included in NB-ECEC.

Country: Studies must deal with ECEC in Scandinavia. Scandinavian refers to studies based on data from research into ECEC in Denmark, Sweden or Norway. Studies must, as a minimum, process 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. We also see a need to clarify how we deal with research presented in reviews. Reviews are included if (1) it is evident that the study includes studies from one or more Scandinavian countries, or (2) the study has a topic that is explicitly related to Scandinavian ECEC research.

Target group: This review will directly address the purpose of and activities relating to content, working methods, people, the environment in or relevant aspects (such as teacher training, professional development) of early childhood education and care 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 early childhood education settings involving children of this age group but that do not directly relate to early childhood education will be excluded. For example, a study on the vocabulary of four-year-olds that does not relate to the practice of early childhood education (independent of early childhood education as

the context of language development) will be excluded. From a Danish context, we include day-care, nurseries, kindergartens and integrated institutions. From a Norwegian context, we include kindergartens, open kindergartens and family kindergartens, while we include pre-schools, educational care and open pre-schools from a Swedish context. However, it is important to note that the Swedish preschool class is not part of the target group. The Swedish preschool class is compulsory for 6-year-olds, similar to primary and secondary education and training in Norway and Denmark, and studies that focus on the Swedish preschool class are therefore excluded. Institutions with a particular academic or content-related profile, such as nature ECEC facilities and sports ECEC facilities, have been included because they are governed by the ECEC legislation of the countries in question. Studies that focus on the transition between ECEC and school and that have a special focus on early childhood education as an institution have also been included.

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

2.3 Screening

We have used EPPI-Reviewer Web v.6 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.

After literature searches in Scandinavian and international databases, all findings were uploaded to the EPPI Reviewer web. Duplicates were then removed via EPPI-Reviewer's built-in duplicate removal feature. A total of 1668 studies were identified as duplicates via EPPI. A manual duplicate check was then performed that found an additional 212 duplicates.

All 4718 studies identified through systematic searches in Scandinavian and international databases and journals have been read by two researchers who have assessed each study independently of one another. Firstly, two researchers screened the title and abstract in order to exclude any studies that did not meet the inclusion criteria. The articles were subsequently screened in full. Studies that did not meet the inclusion criteria were excluded (full text screening). Disagreements relating to the exclusion of studies in both screening phases were discussed by the two researchers 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. As a result, eight additional studies from 2022 and 2023 were included for screening. 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 studies.

2.4 Coding and assessment of quality

A total of 546 studies dealing with Scandinavian empirical ECEC research were included for 2022 and 2023. For 2022, this amounted to 290 included studies, and 256 included studies for 2023. These were coded and quality assessed by two independent researchers. The coding 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 pre-defined response categories, where respondents could elaborate using free text boxes under each question.

The coding form was revised in 2021 within certain categories to better reflect the current Scandinavian ECEC context, as well as to make the coding form clearer and avoid misinterpretations. This year, only one change to the coding form has been made. Based on ambiguities related to the publication year, we have chosen to code the publication year into two categories in this report: (1) the year the publication was first made available and (2) the year the publication was actually included in an issue and officially assigned as the publication year in the final reference. This can contribute to greater transparency regarding the actual publication year and help avoid a study being registered twice with two different publication years. However, this change may result in some discrepancies in this year's review. As mentioned above, we see that some articles that were published online before 2022 and in an issue in 2022 or 2023 were not previously included, as they fell outside the review year at the time of review. To include these in the statistics and the database, they will need to be assigned the issue year to be incorporated into NB-ECEC, as we do not retroactively update the database. We believe that this will only apply to this year's report and that this problem will become less relevant as we review closer to the publication year and choose to use the online year as the applicable publication year. In order to avoid unnecessary bias in the presentation of data, we will primarily present all figures as percentages rather than numbers, except for the number of studies and the appendices that show quality in relation to selected variables. This year, we will also add a section that presents data for the online year and issue year.

An updated coding form and memo describing all changes made can be found on the NB-ECEC website www.nb-ecec.org.

In order to maintain impartiality, all researchers from the Knowledge Centre for Education/FILIORUM and the panel of experts were asked to declare any conflicts 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 disqualified, 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 languages they were proficient in.

We used EPPI-Reviewer Web v.6 to code and assess quality. Quality assessment of empirical studies, both qualitative and quantitative, is a key part of the research process, particularly in systematic reviews. The purpose of quality assessment is multifaceted.

By assessing the methods and analyses in a study, one can determine whether the results are credible and valid. For qualitative studies, this includes an assessment of data collection methods,

analysis strategies and the researchers' transparency throughout the process. For quantitative studies, factors such as sample size, validity and reliability of measuring instruments are assessed, as well as the correct use of statistical analyses.

Quality assessment also plays a critical role in identifying and minimising biases that may impact results. This includes selection bias, where the sample is not representative of the target group, reporting bias, where only certain findings are highlighted, and methodological weaknesses that may introduce bias in the analysis. Identifying and addressing such weaknesses is essential to ensuring reliable and accurate conclusions.

Standardised criteria enable systematic comparison of studies and help prioritise the most reliable findings in further analyses. The inclusion of high-quality studies enhances the credibility of the conclusions as a whole, which is crucial for evidence-based practice and policy. At the same time, quality assessment helps to identify methodological weaknesses in existing research, and provides valuable insight for future studies.

Based on a comprehensive assessment, each study was classified as high, medium, or low quality. The criteria for achieving high or medium quality is based on whether the study reports using sufficient transparency in connection with data collection methods, analysis methods and the description of the sample and recruitment. As in previous years, the assessment is rooted in transparency and the extent to which the researchers have answered the research questions in a manner consistent with the study's design and description.

The assessment of the study's quality is solely based on how it is presented in the published article. More information on the criteria for assessing quality can be found by studying the coding form and its guidance, which are available on the NB-ECEC website. Studies assessed as medium or high quality are characterised by being reported in a credible, clear and sufficiently detailed manner and are included in the Nordic Base of Early Childhood Education and Care (NB-ECEC) for the 2022 and 2023.

As mentioned, the quality assessments were conducted by two independent researchers. One of these was an internal researcher from FILIORUM/the Knowledge Centre for Education and the other was from the panel of experts. In the event of disagreements between the researchers, the assessment made by 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. If, on the other hand, there was disagreement as to whether a study was of low quality, a third researcher, and in some cases a fourth, was asked to reassess. 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 who did not possess experience from previous years received training in coding and quality assessments of research literature. Information meetings were also held, and Teams channels were created (separate for the two groups to ensure that the assessments were independent) where questions could be asked during the assessment process. The purpose of the meetings and the Teams channels 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.

2.5 Summaries of studies assessed as medium or high quality

Summaries have been written for all studies assessed as having a medium or high research quality, which are published in NB-ECEC. This amounts to a total of 407 studies with accompanying summaries for the years 2022 and 2023. For each study added to the database, a summary is provided to help users grasp the essence of the study. The summaries contain a brief description of the purpose, methods and results. In addition, topic tags have been added based on predefined categories that cover context, research design, country, clients and references. It is not possible to identify which studies have been assessed as having high or medium research quality using the database. The NB-ECEC database has links to studies that have been assessed as high or medium quality published from 2006 to 2023.

As in previous years, a group from KSU and FILIORUM has written these summaries for 2022 and 2023. Since the number of studies in the review for 2022-2023 is so high, we have consulted the client and chosen to use artificial intelligence (AI) to streamline the work. A study by Markowitz (2024) shows that AI with specific instructions can effectively and clearly summarise and communicate scientific texts. The tool, 'NB-ECEC Summary Assistant', was developed using OpenAI's ChatGPT platform. We built a detailed template with specific instructions and examples based on the components to be included in the summaries. We then tested the Summary Assistant on selected included studies, compared the results with summaries written without AI assistance, and adjusted and improved the tool. This process was repeated multiple times until we were confident that the AI-generated summaries accurately reflected the content of the studies and adhered to the summary template.

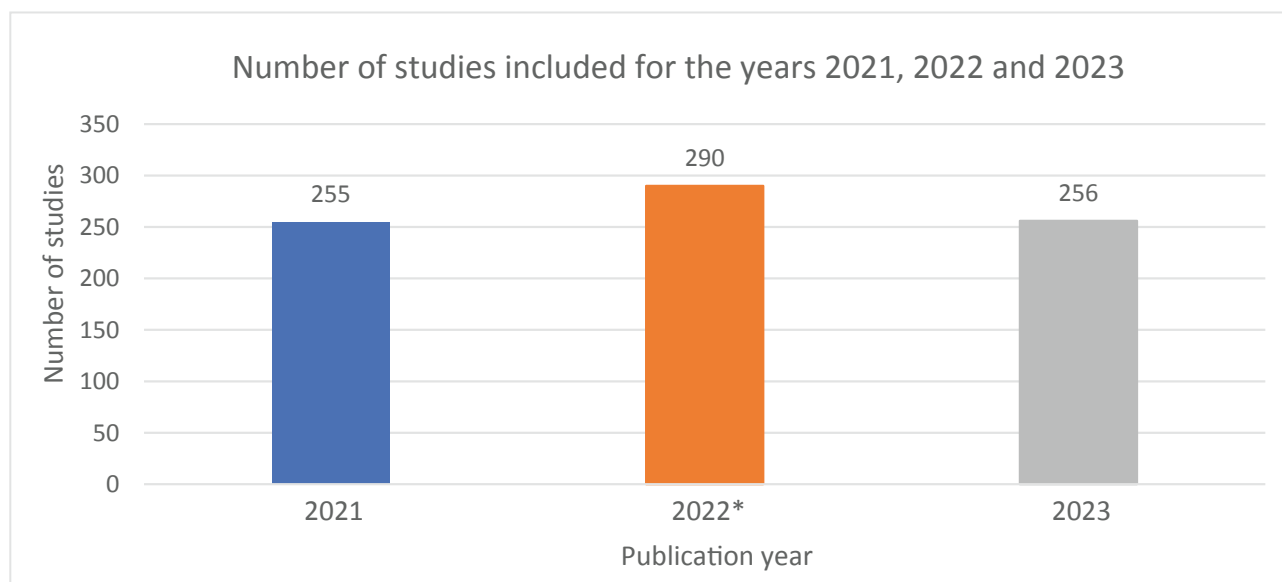
The writers used the AI generated summaries as a starting point. They then adjusted and improved the texts based on the full texts of the studies to ensure both accuracy and high linguistic quality. This process ensured that the summaries accurately reflected the content of the studies, while the language and presentation were adapted to meet our requirements and target groups. All summaries were then thoroughly proofread to ensure accuracy.

3 ECEC Research in 2022 and 2023

This chapter gives an account of and analyses the most important trends in all the 546 included studies representing the Scandinavian, empirical ECEC research we have identified for 2022 and 2023. Furthermore, we compare any changes with the figures from previous years' reports. We also report on the number and/or percentage of publications according to country, publication language, research design and methods used. Note that when multiple answer alternatives are provided, percentages should be interpreted with caution, as the sum of the percentages may exceed 100%. Furthermore, we present the topics that are investigated in the Scandinavian ECEC research, as well as the actors who inform the studies. Finally, the report will provide an overview of the quality assessment in relation to the type of publication, methodology, publication language, country and purpose of the study (appendices 6-10).

3.1 Included studies and distribution according to year, country, language and funding

Figure 1 shows the total number of studies included in the review for 2022 and 2023, as well as the total number in 2021. As shown in the figure, the increase in the number of published studies related to Scandinavian ECEC research continues in 2022, rising from 255 in 2021 to 290 in 2022. However, the number for 2023 is about the same as in 2021, at 256. It is important to note that the numbers should be interpreted with some caution, as the indexing of studies by year may have been influenced by the inclusion of late registrations of studies from previous years. Overall, we still see an increase in the number of published studies related to Scandinavian ECEC research for 2022 and 2023.



* Articles published online prior to 2022 but not previously included in the NB-ECEC database ($n = 52$) have been assigned the year of the journal's issue. As a result, most of these are categorised under 2022 ($n = 47$), while far fewer are placed in the 2023 category ($n = 5$). This may lead to some bias in the material.

Figure 1. The number of studies included for the years 2021, 2022 and 2023.

Table 1 shows the number of included studies categorised according to online year and issue year. The table also indicates the year in which the different categories are indexed, with red representing the 2022 review year and blue representing the 2023 review year. For the vast majority of studies, the online year and issue year are the same. More specifically, 195 studies were published online and in a journal issue in 2022, while the corresponding number for 2023 is 223. However, we see that an additional 33 studies are indexed under the publication year 2023, of which 3 were published online before 2022 but appeared in an issue in 2023, while the remaining 30 are either in a 2024 issue or have not yet been published in an issue. For the publication year 2022, we see that 46 studies were published online before 2022, but they are in a 2022 issue and were not previously included in NB-ECEC (the reason for this is described in Chapter 2). In addition, 49 studies were published online in 2022 but appeared in issues in later years.

Table 1 illustrates the complexity surrounding the issue of publication year and highlights the importance of being aware and having a clear strategy when reviewing research year by year, as is done in the NB-ECEC project.

		Issue Year			Not specified/ Not published in an issue
		2022	2023	2024	
Online year	2019	1			
	2020	6	1		
	2021	39	2		
	2022	195	43	6	
	2023		223	27	3

Table 1. The number of included studies categorised by online year and issue year. The colour red indicates that the studies are categorised under the 2022 review year, while the colour blue indicates that the studies are categorised under the 2023 review year. The reason for this has been presented earlier in the report.

Figure 2 shows stated sources of funding for the studies from 2021-2023. We see here that there has been a decrease from 27% to 22% in the proportion of studies reporting funding from research councils/foundations since 2021, along with a corresponding increase in the proportion of studies funded by universities/research institutions, from 7% in 2021 to 13% in both 2022 and 2023 (13% also in 2019 and 2020). However, if we look at the number of studies, there was a slight increase from 70 studies in 2021 to 77 in 2022 that were funded by research councils/foundations, followed by a decrease to 56 in 2023. We also see a slight increase of 2 percentage points in the proportion of studies that do not specify a source of funding. The data suggest that there has been a shift in funding from research councils/foundations to more internally funded R&D projects, as well as projects without funding.

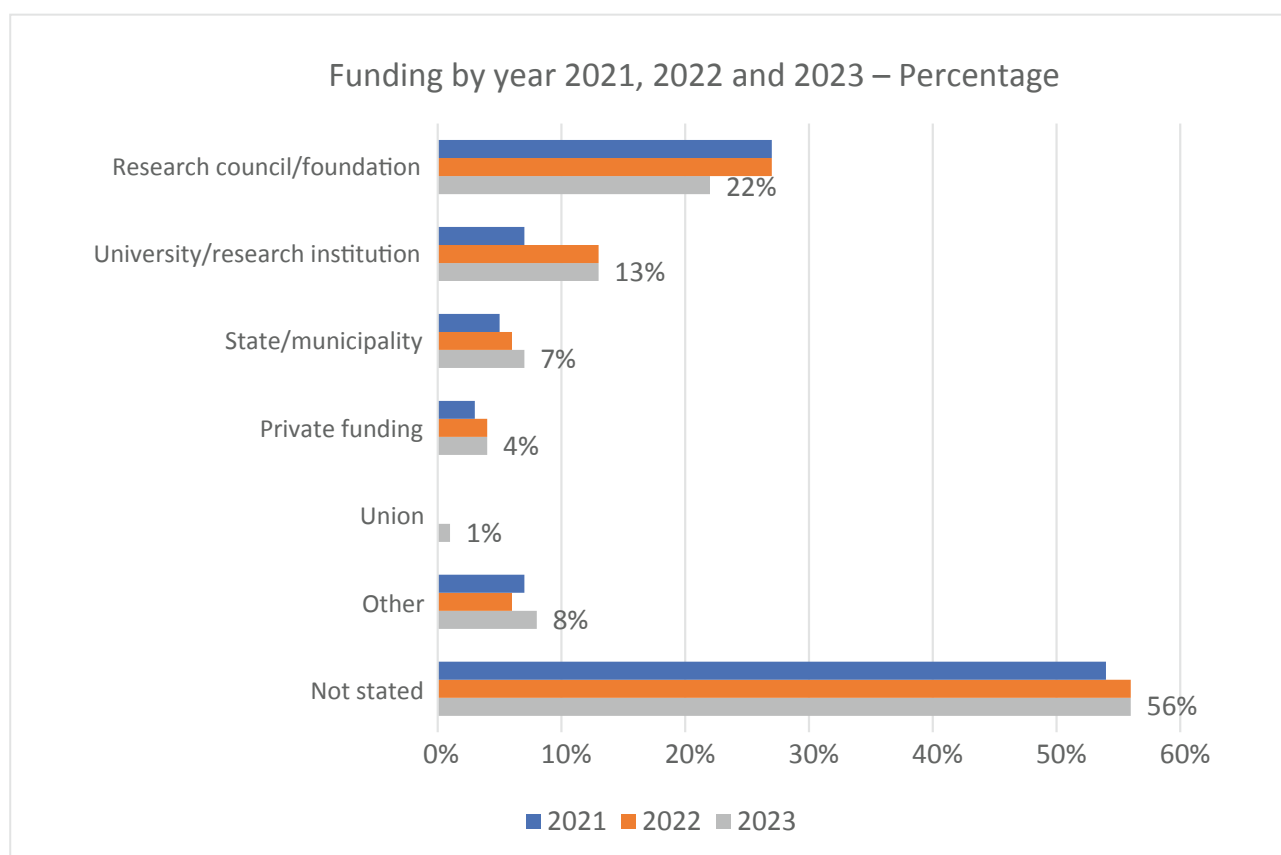


Figure 2. Source of funding stated in the studies, from 2021-2023. It is possible to register multiple sources of funding for a single study. The percentage for 2023 is shown on the data label.

Figure 3 provides an overview of studies conducted in different countries during 2021, 2022 and 2023. Sweden continues to be the country where the most studies are published with 44% (129 studies) in 2022 and 41% (105 studies) in 2023, followed by Norway with 41% (118 studies) in 2022 and 39% (99 studies) in 2023, and Denmark with 19% (56 studies) in 2022 and 23% (60 studies) in 2023. The proportion of studies from other countries has decreased slightly from 10% (26 studies) in 2021 to 7% (20 studies) in 2022 and 8% (20 studies) in 2023.

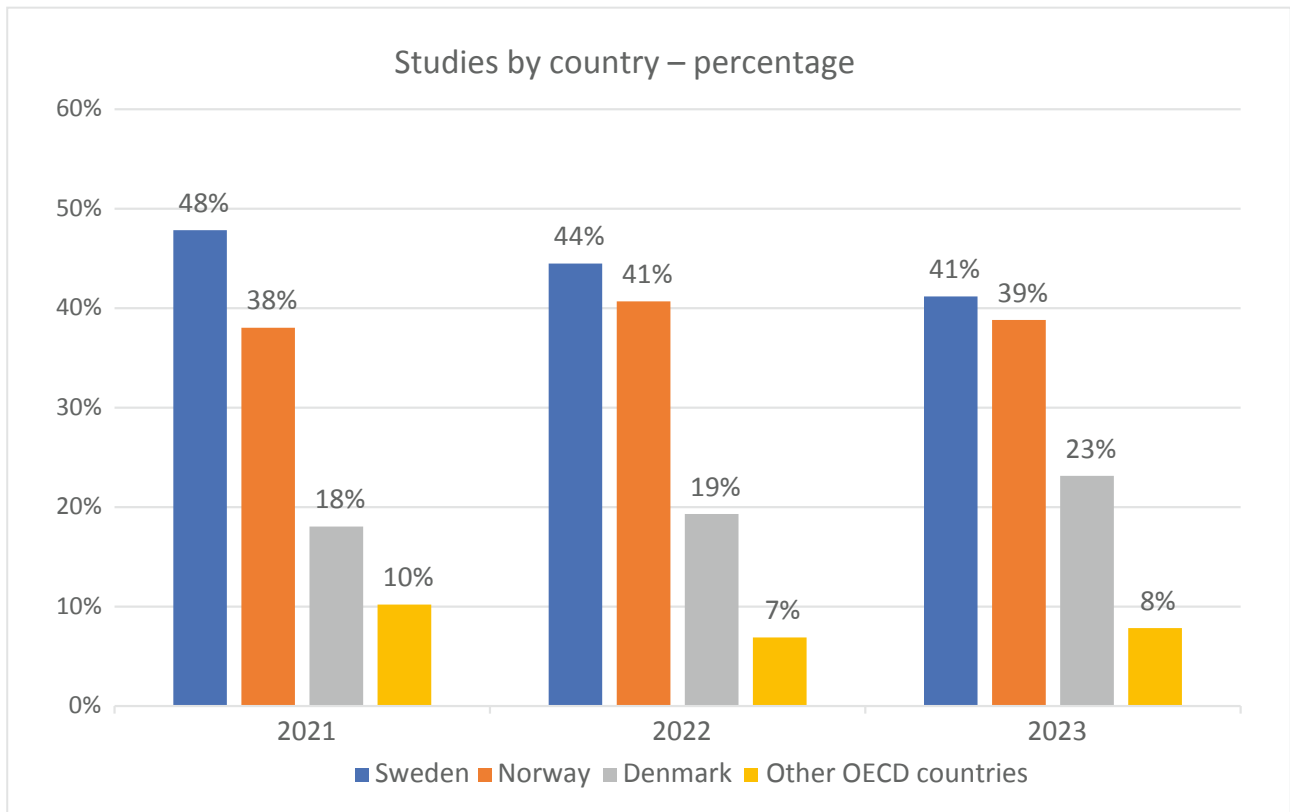


Figure 3. Countries in which the studies were conducted in 2021, 2022 and 2023, shown as a percentage. It is possible to register multiple countries for a single study.

Figure 4 shows the development in the number of publications according to country from 2006 to 2023, as well as the total number of included studies year by year.

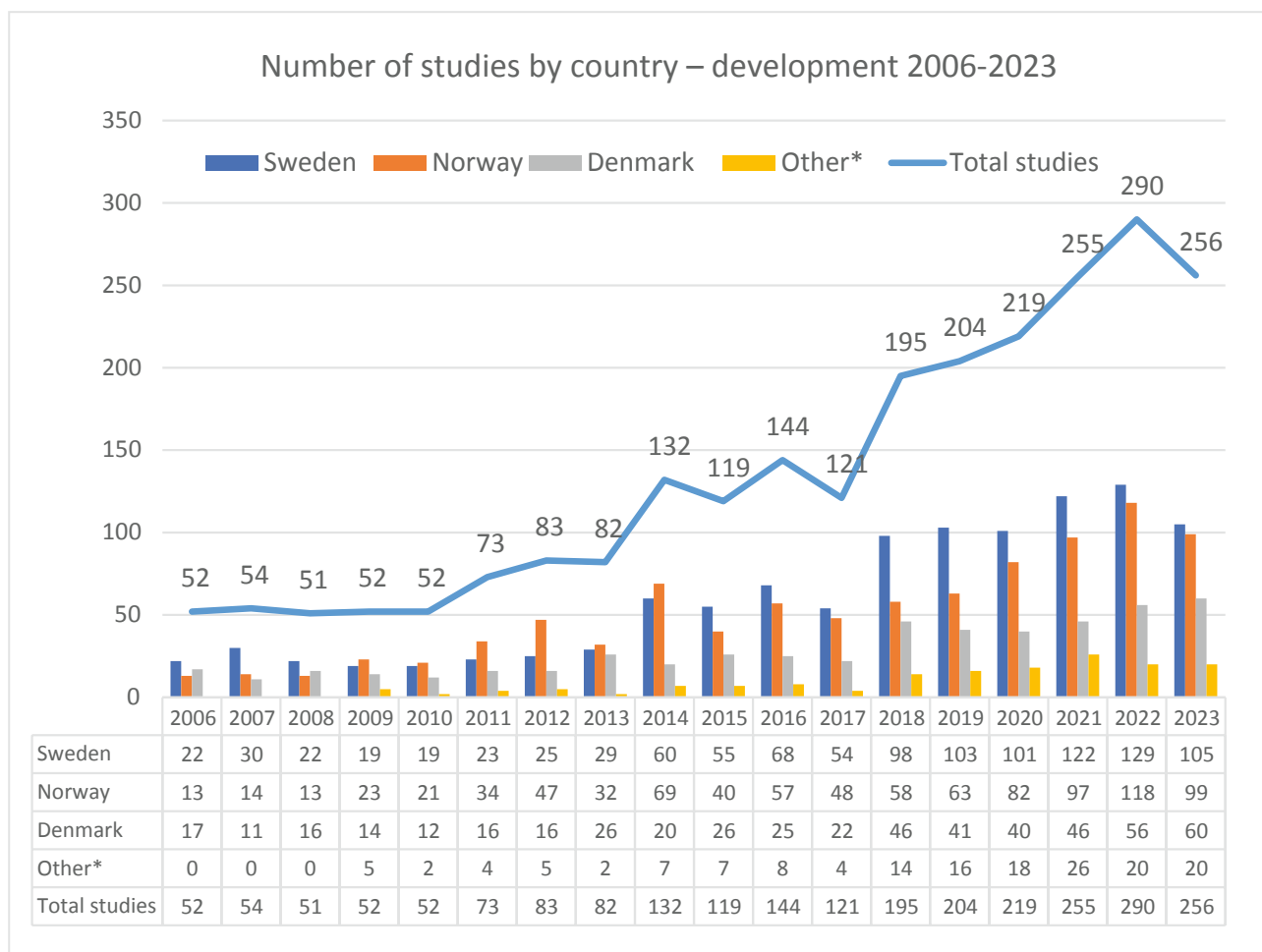


Figure 4. Number of studies according to country in which the studies were conducted from 2006-2023. The blue line shows the total number of included studies for each year. It is possible to register multiple countries for a single study. *Other OECD countries.

Developments over the past three years (Figure 4) show an overall increase in the number of studies for all three Scandinavian countries in 2022, while only Denmark shows a further increase in 2023, with the number of studies from Sweden and Norway decreasing slightly. The proportion of Danish publications has historically varied somewhat, but appears to be increasing from 2021 (18% of studies) to 2023 (23% of studies). By comparison, the trend for Sweden is decreasing from 2021 (48% of studies) to 2023 (41% of studies). For Norway, we see slight changes and no particular trend over the last three years, with a proportion ranging from 38% in 2021, to 41% in 2022 and 39% in 2023.

As in previous years, the proportion of studies on Scandinavian ECEC from other countries is small, and has decreased from 10% in 2021 to 7% in 2022 and 8% in 2023. The changes are small, but may indicate less collaboration with ECEC researchers outside Scandinavia.

Figure 5 shows the distribution of studies according to publication language.

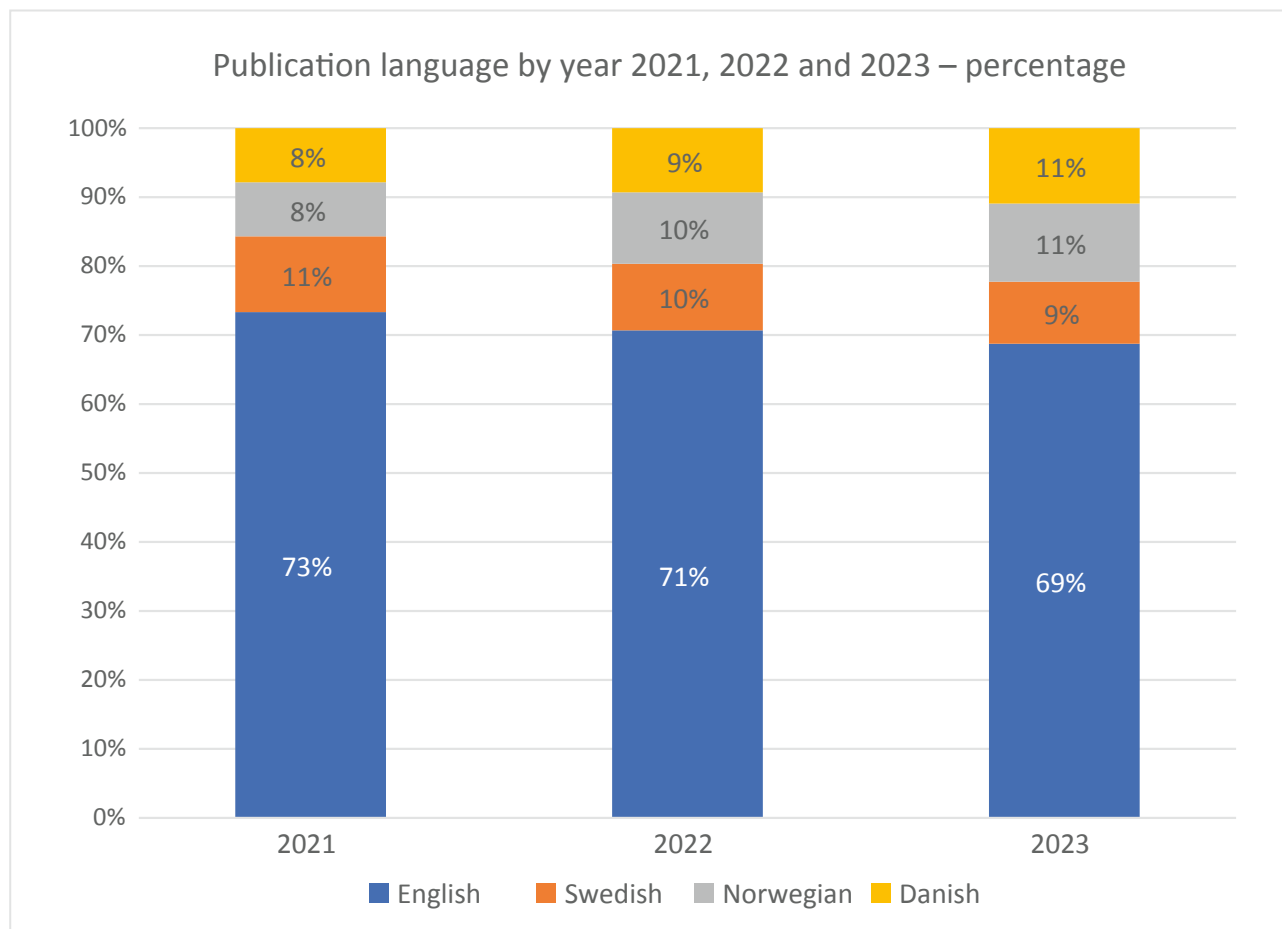


Figure 5: Publication language in 2021, 2022 and 2023.

The figure shows that in 2022 and 2023, there is a reduction in the proportion of publications written in English from 73% in 2021 to 69% in 2023. Furthermore, the publication languages for 2023 are fairly similarly distributed between Swedish (9%), Norwegian (11%) and Danish (11%). Compared to the two preceding years (2021 and 2022), we now observe a slight increase in articles published in Norwegian and Danish (from 8% to 11%). The proportion of articles in Swedish has had a decrease of 2 percentage points from 2021 to 2023. It is interesting that the proportion of publications in English now appears to be decreasing, especially in light of the developments observed in the previous reviews. Looking back at the review of Scandinavian ECEC research, which began in 2006, we see that the use of the English language has been increasing from 2006 until 2021 (see Figure 2 in Furenes et al., 2022). The trend of a decline in publications in English may have various causes. Increased political interest in promoting closer collaboration between research and the field of practice, as well as the need for research to reach the field of practice, where the use of the national language is preferred, could be contributing factors (White Paper 2016-2017; Norwegian Ministry of Education and Research, 2021).

3.2 Applied research methods

Figure 6A shows the various research methods used in the included studies for 2021, 2022 and 2023.

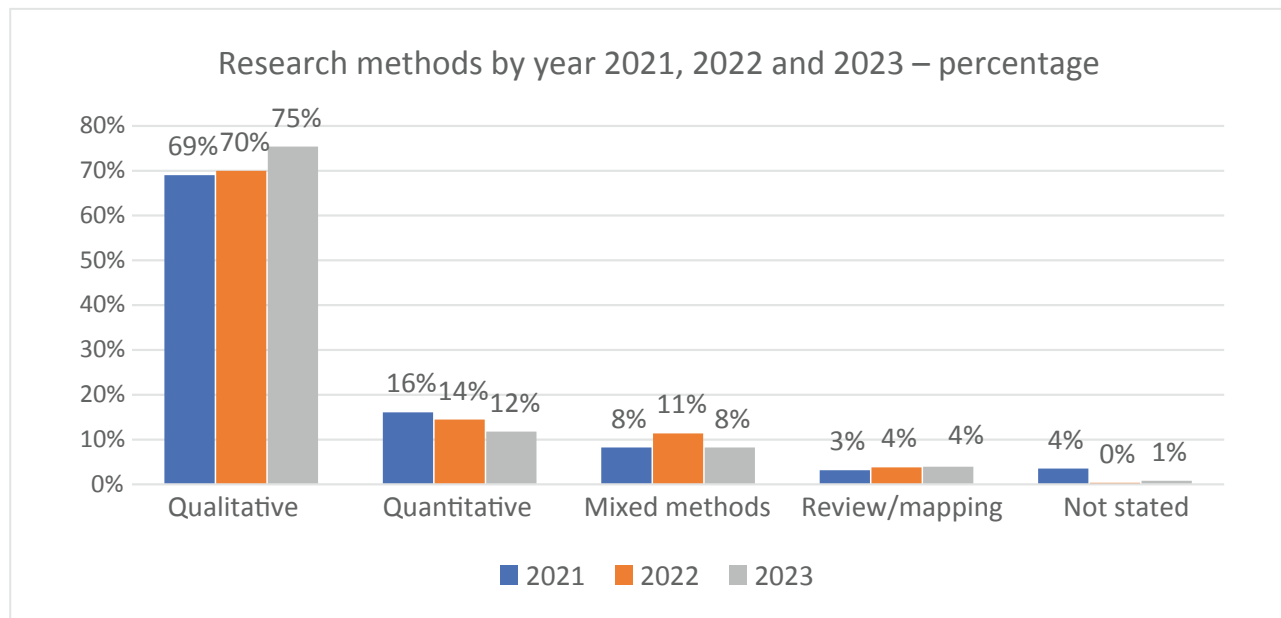


Figure 6A: Research methods for 2021, 2022 and 2023. Only one response was provided for each study. In addition, 4%, 0%, and 1% of the studies for 2021, 2022, and 2023, respectively, did not specify a method.

Qualitative methods have increased by 6 percentage points from 2021 to 2023 and remain by far the most commonly used research method in Scandinavian ECEC research. The proportion of studies using quantitative methods has decreased by 4 percentage points from 16% in 2021 to 12% in 2023. Studies reporting the use of mixed methods decreased from 11% in 2022 to 8% in 2023, a level that is the same as in 2021, when 8% of the studies used mixed methods. The proportion of systematic reviews remains relatively stable and has increased by 1% from 2021 to 2023. 4%, 0%, and 1% of the studies for 2021, 2022, and 2023, respectively, did not specify the method used.

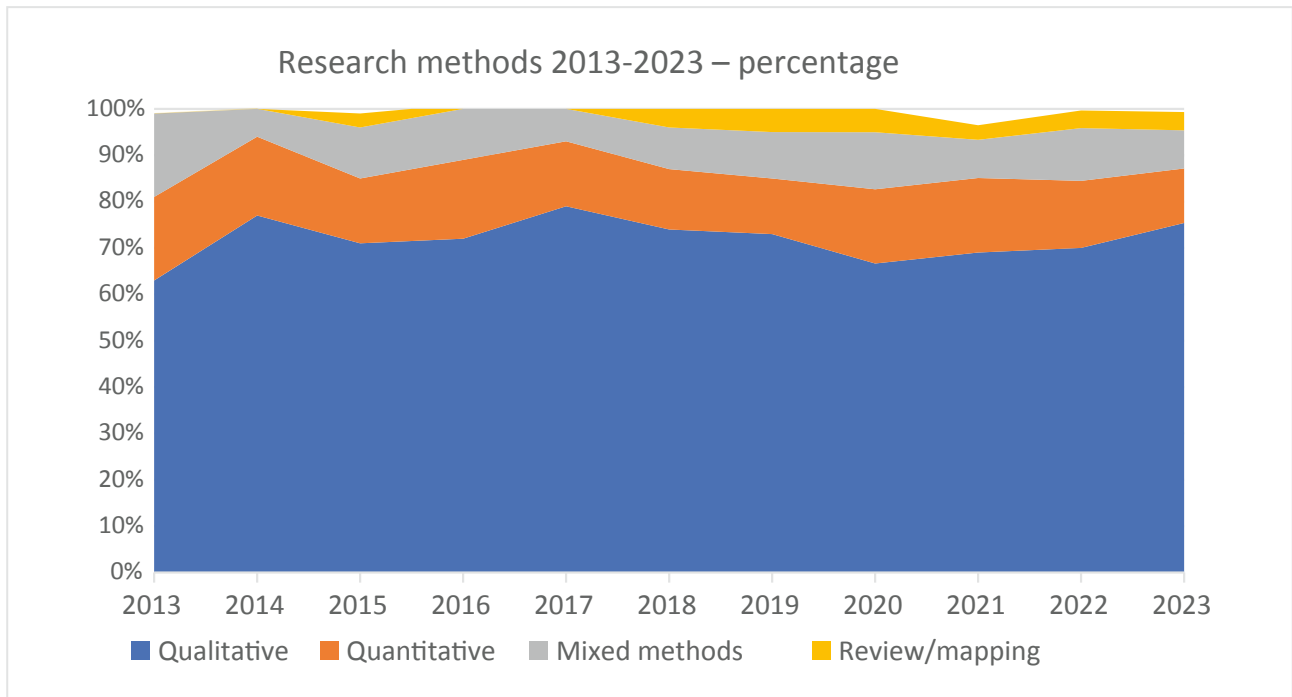


Figure 6B. Research method from 2013 to 2023. Only one response was provided for each study. Data from previous years are taken from previous reports. The white fields represent unclear reporting of the research method.

Figure 6B shows the development of used research methods in Scandinavian ECEC research over the last ten years. It is evident that the different methods have varied by a few percentage points from year to year, but there is generally a stable distribution between the various methods. Possible reasons for the heavy emphasis on qualitative studies across all years could be that ECEC researchers often have practical experience, which influences their choice of a qualitative approach in their research (Hofslundsengen, 2024; Klerfelt, 2002).

3.3 Study design

Figure 7 shows the study designs used in the included studies for 2021, 2022 and 2023.

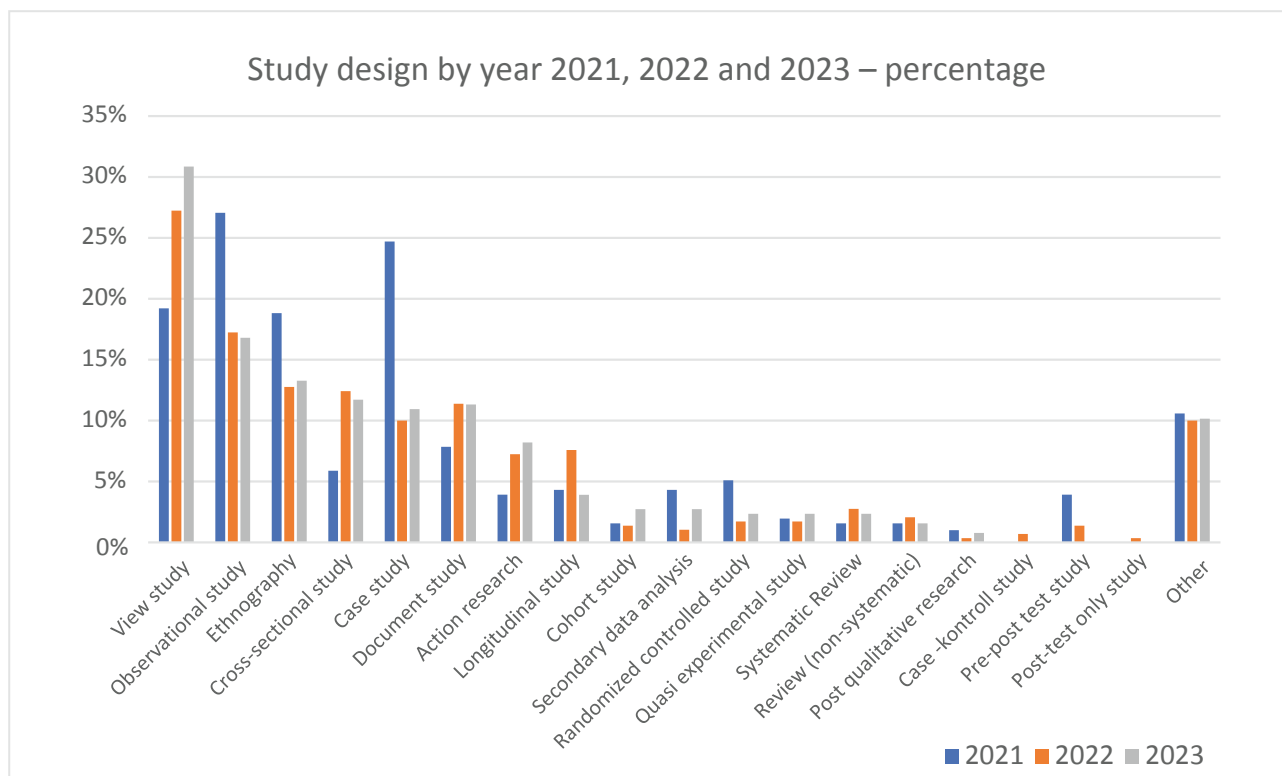


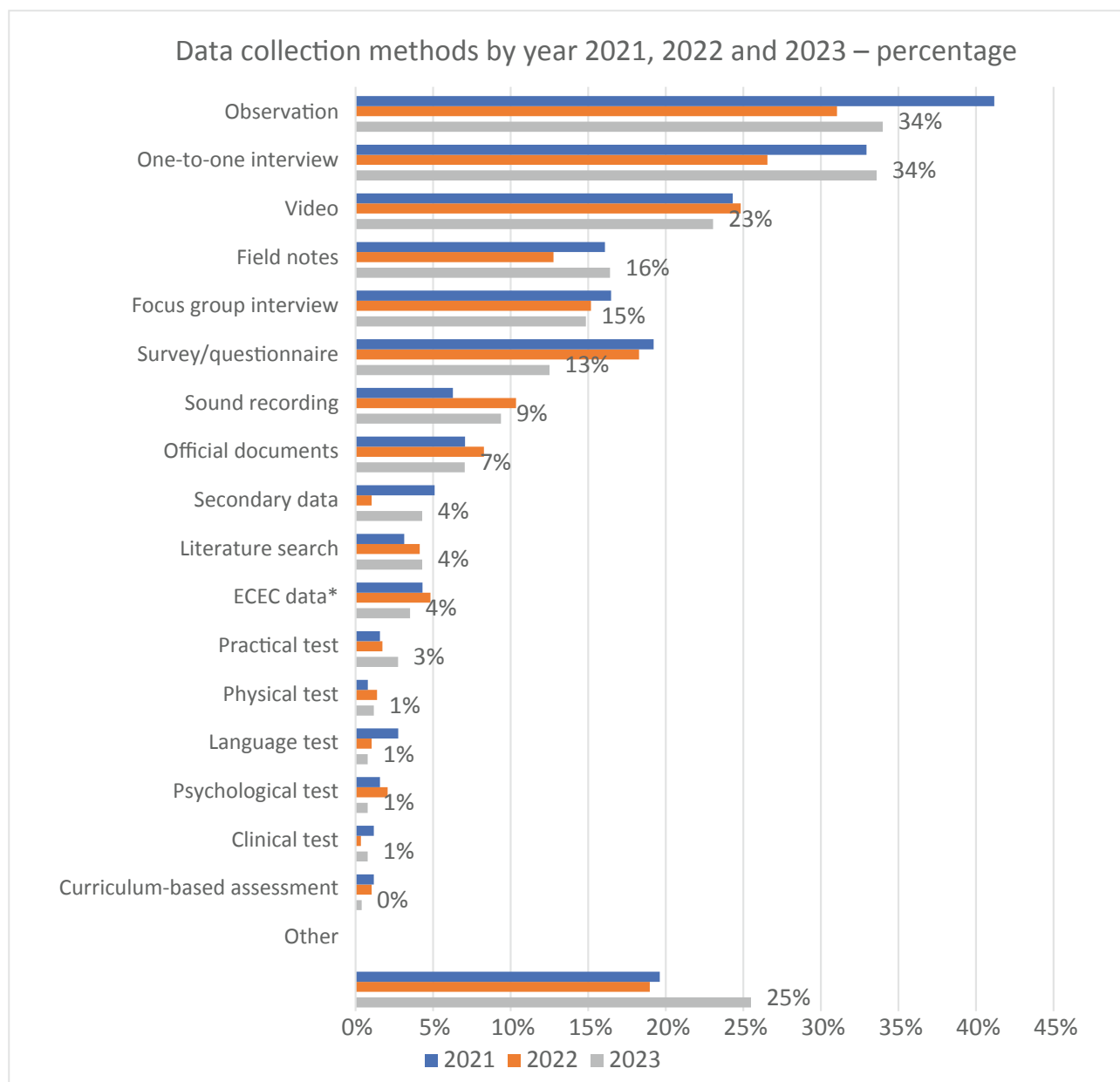
Figure 7. Study designs used in 2021-2023. It is possible to register multiple designs for a single study.

In 2022 and 2023, the majority of studies were **view studies** (27% and 31% for 2022 and 2023, respectively), followed by **observational studies** (17% in both years) and **ethnographic studies** (13% in both years). Notable changes since the 2021 review year include a significant increase in the proportion of view studies (from 19% of studies in 2021 to 27% in 2022 and 31% in 2023). These are studies that investigate the attitudes, perceptions and experiences of informants and are mainly qualitative. This trend can therefore be seen in connection with the increase in the proportion of qualitative studies in this year's review. In addition, we observe a major decline in the proportion of **case studies** (from 25% in 2021 to 10% and 11% in 2022 and 2023), **observational studies** (down from 27% to 17%) and **ethnographic studies** (down from 19% to 13%). Case studies have now returned to approximately the same level as in 2020 (12%). The proportion of observational studies has been the most commonly used study design in the past three years, but it now shows a clear decline. We also see that the proportion of **cross-sectional studies** is increasing again (from 6% in 2021 to 12% in both 2022 and 2023), after experiencing a significant decline in the previous review. With regard to other study designs, there have only been minor changes over the past two years.

Within the **other** category, there have been small changes (11% in 2021 and 10% in both 2022 and 2023). The other category includes studies with a design that does not fit into any of the other categories. In 2022 and 2023, we find studies that, according to the coders involved in the review, are categorised as including discourse analysis, grounded theory, narrative studies, comparative and multilevel studies, interview studies, practice-based research, cartography, pilot studies, phenomenological studies, intervention studies, collaborative research, and convergent mixed methods. For several of the studies, it has also been unclear which design was used. The

relatively large variations in study design from year to year may reflect variations within the research field, but they could also be explained by the fact that the study design categories may be difficult to interpret, and an update and simplification of these categories could be relevant.

Figure 8 shows reported data collection methods for the included studies.



*Meeting minutes, calendar etc.

Figure 8: Registered data collection methods for the years 2021, 2022 and 2023, in percentage, sorted by the year 2023. The percentage for 2023 is shown on the data label. It is possible to register multiple data collection methods for a single study.

Most studies report **observation** and **one-to-one interviews** as the data collection method. We also see that since 2021, there has been a decrease from 41% to 34% in 2023 for observational studies. The proportion of studies using observation fluctuates from year to year, but there is an overall trend of decline, as it was 46% in 2020 and 41% in 2021. Furthermore, **video** remains one of the most commonly used methods for data collection, with little change observed from

2021 to 2023. **One-on-one interviews** have increased from 27% in 2022 up to 34% in 2023, which is also quite similar to the proportion in 2021 when the method was used in 33% of the studies. An interesting finding in this year's review is the decrease in the data collection method of **questionnaires** (from 19% in 2021 to 13% in 2023). **Field notes** and **focus group interviews** fluctuate somewhat. Where field notes saw a slight decrease to 13% in 2022, the level in 2023 stands at 16%, the same as in 2021. The other data collection categories are all used in less than 10% of the studies and show only minor changes, with the increase in **sound (audio) recording** being the most prominent, from 6% in 2021 to 10% in 2022 and 9% in 2022. For 2023, as in the previous two years, there are few studies that use different forms of tests (**language, clinical, physical, practical or psychological**). A quarter of the studies are coded under the other category (some in combination with other data collection codes). According to the coders' comments, in 2022 and 2023, these studies use data collection methods such as photography (a significant proportion used this), drawings, discussion groups, workshops, reflection workshops, and registry data. In addition, there are also a few studies (5) with such insufficient information about the data collection method that it has not been possible to determine the method used for data collection. The **other** category has increased by 6 percentage points from 2022 to 2023, and we see that a total of 120 studies have been coded under the **other** category for 2022 and 2023. This may indicate that the data collection method categories are not sufficiently comprehensive or updated to identify the studies currently included in NB-ECEC.

3.4 The purpose and content of the research

The purpose of the studies has been coded using five categories: **Description, exploration of relationships, effect studies or studies of interventions ('what works')** and reviews that **map/synthesize research**. The studies are further categorised according to the various topics they cover. Since one study may touch on several topics, several topics are often registered for each study.

Purpose

Figure 9 provides an overview of study purposes in 2021, 2022 and 2023.

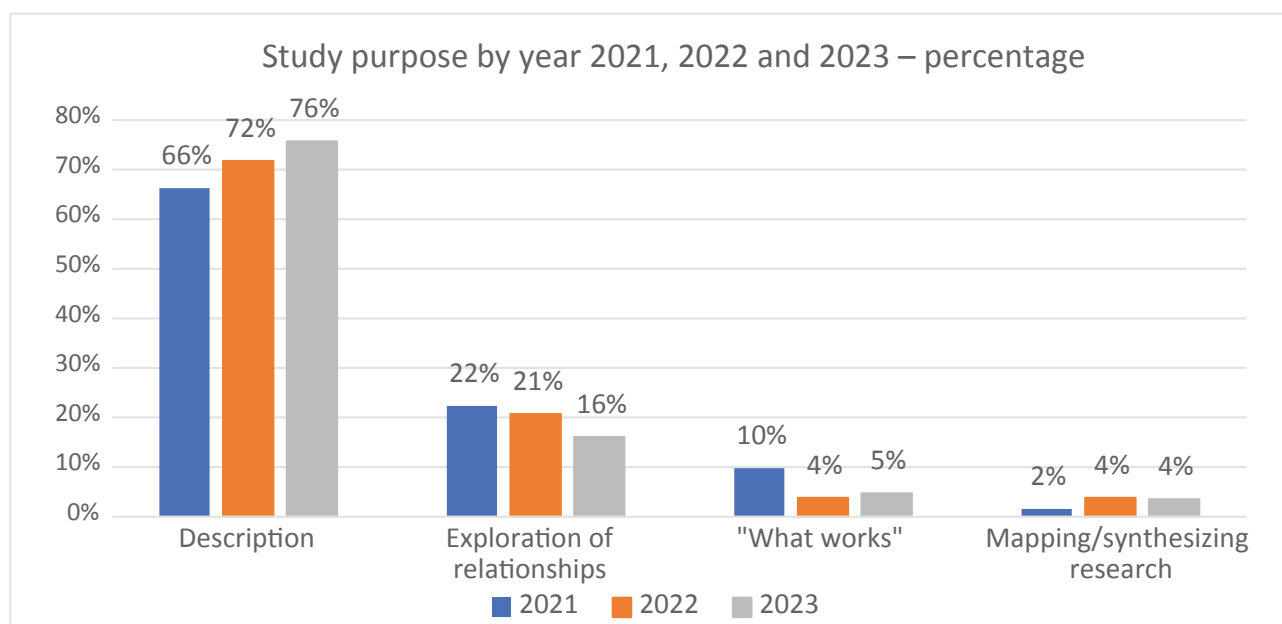


Figure 9: Study purposes for 2021, 2022 and 2023. It is only possible to provide one response for a single study.

We see that **descriptive** studies remain clearly dominant, with this category increasing from 66% of studies in 2021 to 72% in 2022 and 76% in 2023. Since 2006, most included studies have been descriptive. In 2021, we observed a decrease in the proportion of such studies compared to 2019 and 2020, but we are now seeing a clear increase.

In 2021, 22% of the included studies had the purpose of **exploring relationships** between variables. This marked an increase from the previous years, but we now see a decline, with the percentage returning to levels seen in earlier years. In 2022, the proportion was 21%, while in 2023 it fell to 16%. An example of this type of study is one from 2022 that investigates the relationship between children's measured cortisol levels, as an indicator of stress, and ECEC quality.

The '**what works**' category accounted for 10% of the studies in 2021. This type of study investigates cause-and-effect relationships/causality and typically focuses on the effect of interventions. An example from 2022/2023 is a study that tests whether an intervention involving ECEC staff stimulates children's language. The proportion of studies with the purpose of '**what works**' decreased from 10% in 2021 to 4% in 2022 and 5% in 2023. It is worth noting that the proportion of studies investigating the correlation between variables and the effects of interventions in an ECEC context is low. This may be due to the fact that ECEC research has a long tradition of describing phenomena rather than studying the effects of interventions (Furenes et al., 2024). In addition, studies exploring causal relationships are both resource-intensive and complicated to perform in an ECEC context. The results, however, point to a need for Scandinavian ECEC research to increasingly focus its research questions on exploring which interventions actually have an impact (Størksen et al., 2024). Future studies should focus on assessing the effectiveness of various interventions, thereby contributing to increased knowledge about what can have a real impact on both practice and children's development in an ECEC context.

The category of **mapping/synthesizing research** (reviews) still accounts for a relatively low proportion of the studies, but has increased somewhat since 2021. The proportion of 4% observed for both 2022 and 2023 is approximately back to the level seen in 2019 and 2020 (both 5%). An example from 2023 is a systematic review that explores research from 2010–2020 on scientific curiosity and wonder in ECEC settings. In this year's review, as in previous years, there is a very limited proportion of reviews within Scandinavian ECEC research.

Topic

Figures 10A and 10B provide an overview of the topics investigated by the included studies for 2021, 2022 and 2023. Since a study can address multiple topics, it is possible to report on several topics per study.

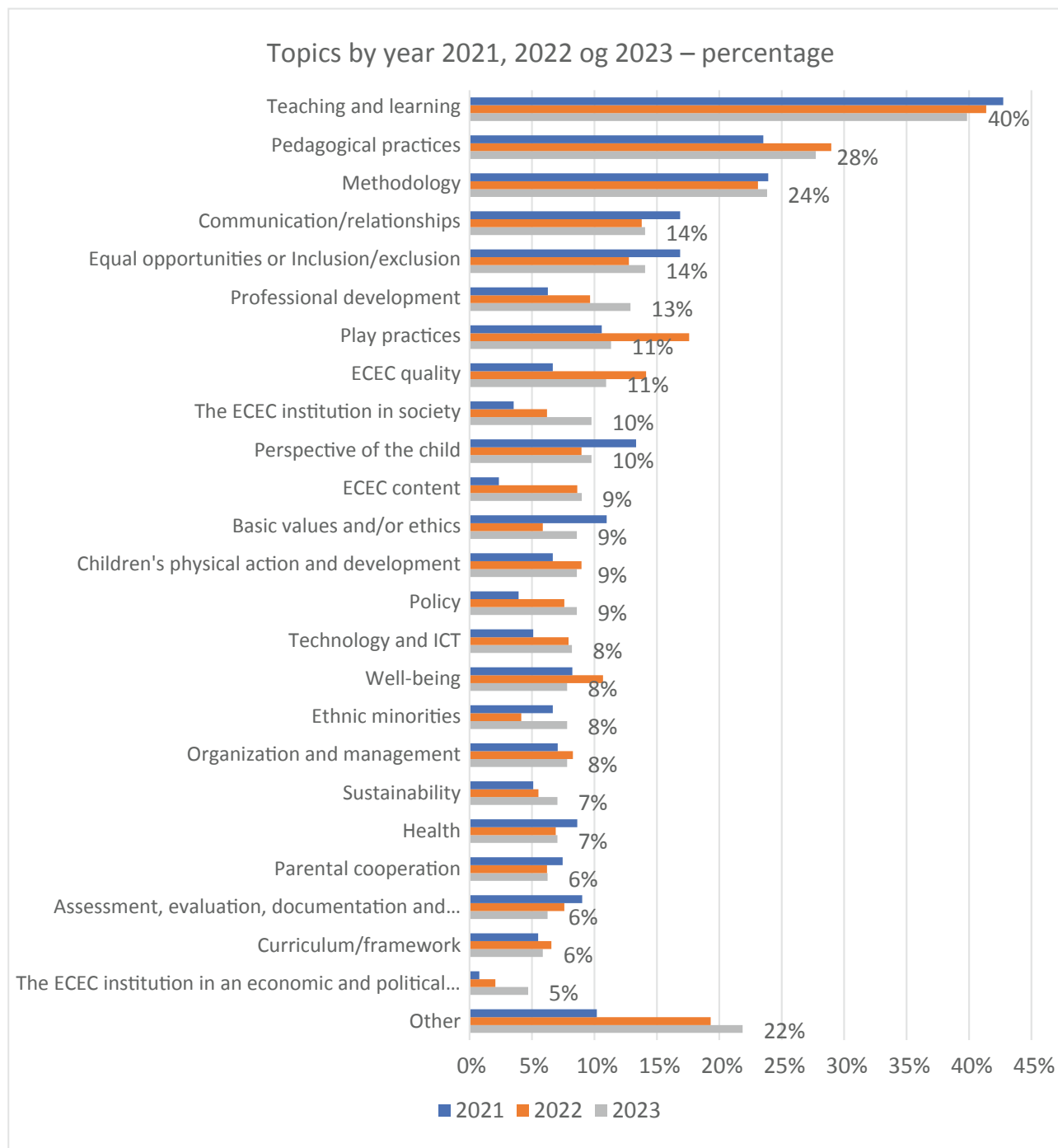


Figure 10A: Study topics for 2021, 2022 and 2023. Categories with over 5%. The percentage for 2023 is shown on the data label for each category. It is possible to provide multiple responses for a single study.

As in previous years, the majority of studies still focus on the topic of **teaching and learning** (43% in 2021, 41% in 2022, and 40% in 2023). In the previous report (Guldbrandsen et al., 2024), a decline was observed, and we now see that this decline is continuing. At the same time, we observe a moderate increase in the other historically large category, **pedagogical practices**, which rises from 24% in 2021 to 29% and 28% in 2022 and 2023, respectively. The **methodology** category (pedagogical/didactic method of work) has increased significantly in recent years and has stabilised at 23-24% for 2021-2023. Historically, the proportion of studies in this category has been between 0-10%, but we now see that methodology consistently accounts for approximately a quarter of the studies. For the fourth and fifth largest categories of **communication/relationships** and **equal opportunities or inclusion/exclusion**, we observe a slight decline since 2021, both from 17% in 2021 to 14% in 2023. We also see that some categories demonstrate relatively large variations from year to year, without any clear trend emerging. For example, this applies to the categories of **play practices**, **perspective of the child** and **values and/or ethics**, all of which fluctuate between 4-7 percentage points over the three years shown in Figure 10A. Other changes to note in the data for the past three years include increases in the categories of **professional development**, **the ECEC institution in society**, **ECEC quality**, **ECEC content and politics**. Overall, we can say that topics focusing on ECEC teachers and their practices, as well as issues related to ECEC as an institution in society (content, policy), are increasing, while issues concerning children themselves do not show the same trend. This is despite an increasing focus on strengthening research oriented toward children's perspectives on everyday ECEC routines (Macha et al., 2024). This can also be seen in relation to the findings for subjects of study in this year's review, where we observe a clear decline in studies focusing on children.

The category of **other** topics has increased significantly since 2021, from 10% in 2021 to as much as 22% in 2023. However, this is still at the same level as the figures for 2020, where the percentage was as high as 26%. The inclusion of new categories was presented as a hypothesis to explain the decrease in 2021, but it now seems that there are once again challenges in finding appropriate categories for many of the topics covered in the studies. In 2022 and 2023, the **other** category includes 111 studies on topics described as gender, vulnerability, belonging, touch, religion, art, language development/multilingualism, reading, special needs education, starting at ECEC facilities and food/meals.

However, it is important to emphasise that the category 'teaching and learning' can be discussed in the context of ECEC because the term 'teaching' is traditionally associated with more structured, adult-led learning activities that are often linked to school contexts. In ECEC settings, learning is often more informal, based on children's own interests and exploration through play and interaction with others. Therefore, it can be misleading to use the term 'teaching', as it can suggest a more controlled and goal-oriented form of learning than what is typical in ECEC. In ECEC settings, learning is seen as a process that takes place through children's active participation, curiosity and exploration in an environment that supports their holistic development - socially, emotionally and cognitively. The term 'development' combined with 'learning' may therefore be more appropriate, as it reflects a broader understanding of children's growth and learning, which is not necessarily goal-oriented or formal. The discussion regarding 'teaching and learning' is important for assessing whether ECEC should adopt a more structured, adult-led approach, similar to the school system, or whether learning should be understood as a dynamic, process-based activity that occurs through interaction with the environment.

Figure 10B shows the developments within the topics investigated by less than 5% of the studies. Here, we see large variations from year to year, but this is not so unusual when dealing with such small numbers. It is worth noting the large increase in the category of **transition from kindergarten to school** which increases from 1% in 2021 to 4% in 2023. There is a major decline for the category of **ECEC from a historical and cultural perspective**, and the category of **economy** has also continued to be a very under-researched topic in Scandinavian ECEC research over the past three years. From 2021 to 2023, only two studies focused on this topic.

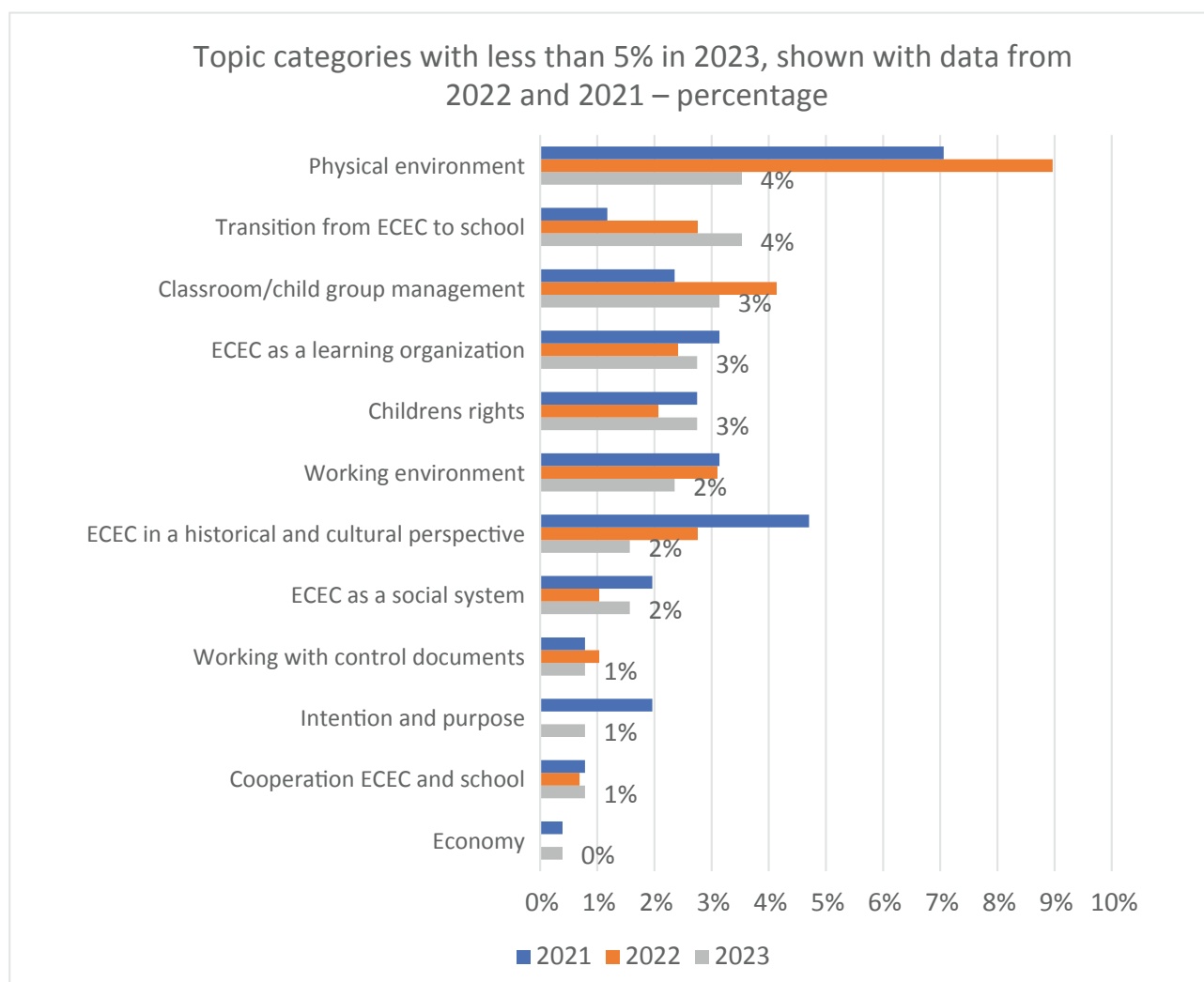


Figure 10B: Study topics for 2021, 2022 and 2023. Categories with less than 5 percent. The percentage for 2023 is shown on the data label for each category. It is possible to provide multiple responses for a single study.

3.5 Study subjects and informants of the research

In the included studies, information has also been extracted regarding who the subjects of study are and who provides the information for the studies. Study subjects are the actors who are the focus of the study's research, while informants refer to the persons who are observed, interviewed or who in some other way contribute data/information to the study.

Figures 11 and 12 present an overview of the different groups registered as study subjects and informants in the included studies from 2021 to 2023.

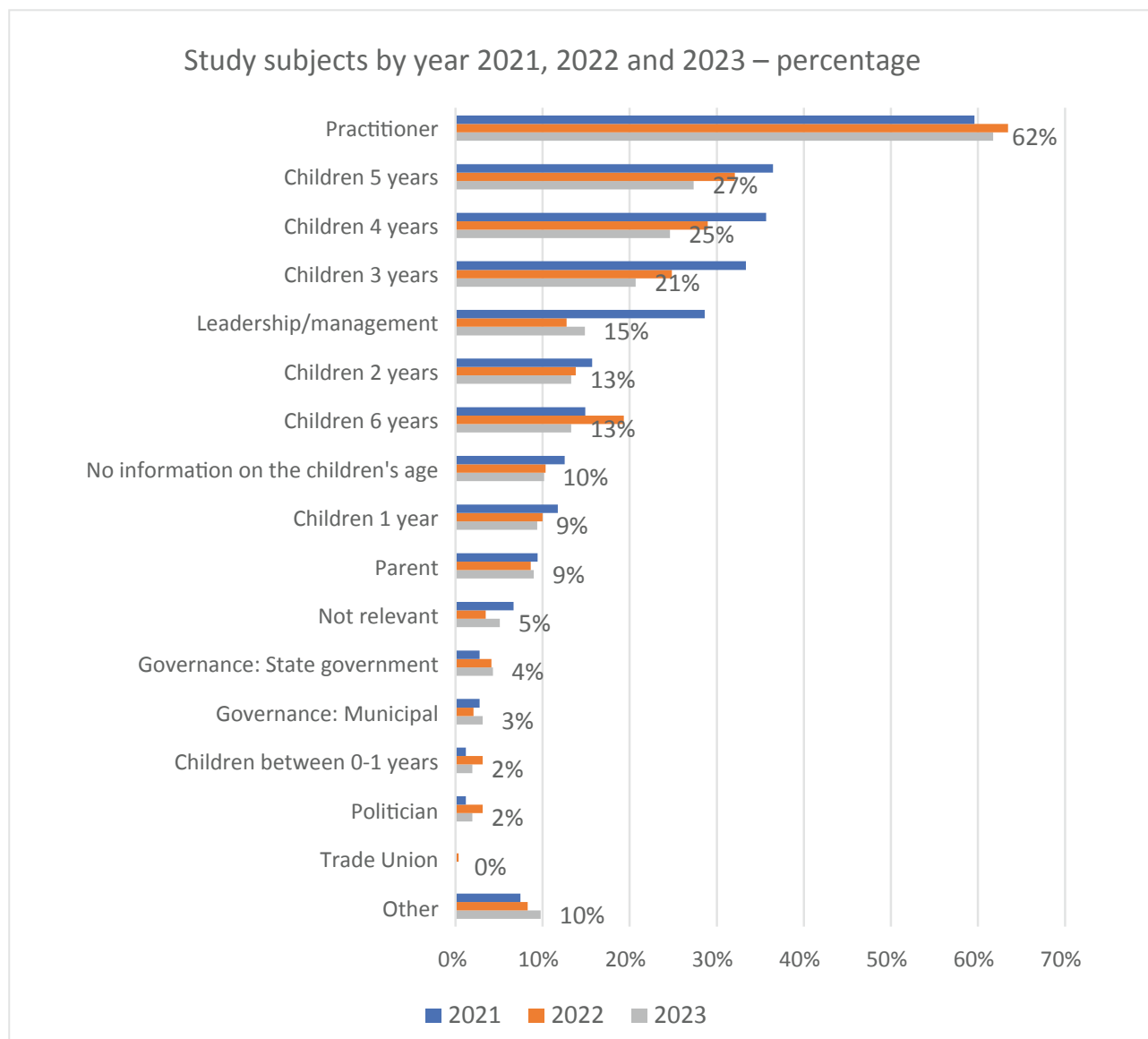


Figure 11: Percentage distribution of subjects of study in 2021, 2022 and 2023. It is possible to register multiple age groups for a single study. The percentage for 2023 is shown on the data label.

Figure 11 shows that practitioners are still the most frequently used study subjects. This has been the largest category of subjects of study since 2017, and we see small changes in this category over the past three years. The proportion of studies involving practitioners has ranged from 60% in 2021, to 63% in 2022 and back to 62% in 2023. Furthermore, we see that the proportion of studies focusing on leadership or managers has decreased significantly since 2021, from 29% in 2021 to

13% in 2022, and further to 15% of the studies in 2023. Another change in the data material since the last review (Guldbrandsen et al., 2024) is the decline in the proportion of studies that focus on children. With the exception of 0 to 1-year-olds, the proportion has decreased within all child categories. For some categories, the decline is quite notable. An example is the decrease of 12, 11, and 9 percentage points for 3-, 4-, and 5-year-olds, respectively. For the other categories, such as parents, there are small changes, and as in previous years, there are still very few studies (< 5%) that focus on state or municipal administration, politicians, or trade unions. However, the other category has increased slightly since 2021, from 7% to 10% in 2023. In 2022 and 2023, we find in this category actors described as researchers, teachers, students, school pupils, counsellors from the educational-psychological service, nurses, and musicians. Note that several of these studies involve multiple actors and are therefore also coded with study subjects from an ECEC context.

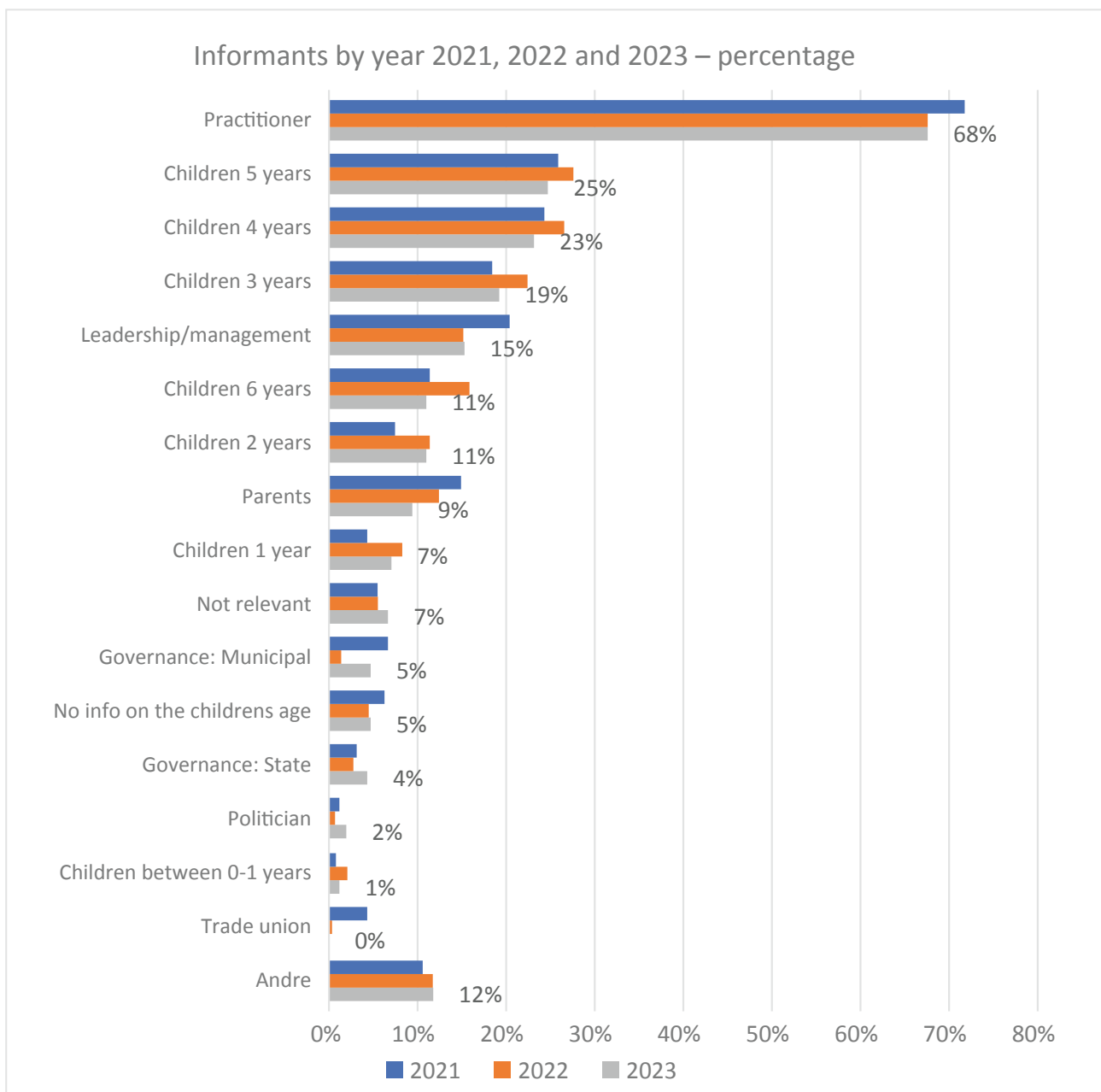


Figure 12: Percentage distribution of groups providing information for the studies in 2021, 2022 and 2023. It is possible to register multiple informant groups for a single study. The percentage for 2023 is shown on the data label.

Figure 12 shows that practitioners continue to be the most frequently used informants in Scandinavian ECEC studies, a trend that has continued since informants were first registered in 2017. However, there has been a moderate decline since 2021. In 2021, practitioners were informants in 72% of the studies, and in 2022 and 2023, the proportion is 68%. The decline is modest but nonetheless interesting, as this group of informants had been increasing in previous reports. It is worth noting that it is common for studies to include several types of informants. The proportion of studies using leaders/managers as informants has also declined, from 20% in 2021 to 15% in both 2022 and 2023. The same applies to studies that include parents as informants, where there has been a decline from 15% in 2021 to 12% in 2022 and down to 9% in 2023. At the same time, we see an increase from 2021 to 2023 in the proportion of studies involving the youngest children (under three years of age) as informants. The proportion of studies with 1-year-olds as informants rose from 4% to 7% from 2021 to 2023, and the proportion using 2-year-olds rose from 7% to 11%. The **other** category has shown little change over the past two years, remaining at 12% in both 2022 and 2023, which is one percentage point higher than in 2021. In this category, we find informants in 2022 and 2023 described as students, researchers, special needs education teachers, older children, musicians, artists, the ECEC environment, and various documents.

Children as informants refers to studies where, for example, video observations, measurements and/or interviews of children are included as part of the source data. Figure 13 shows the proportion of studies in 2021, 2022 and 2023 that involve children as study subjects, as well as studies using children as informants.

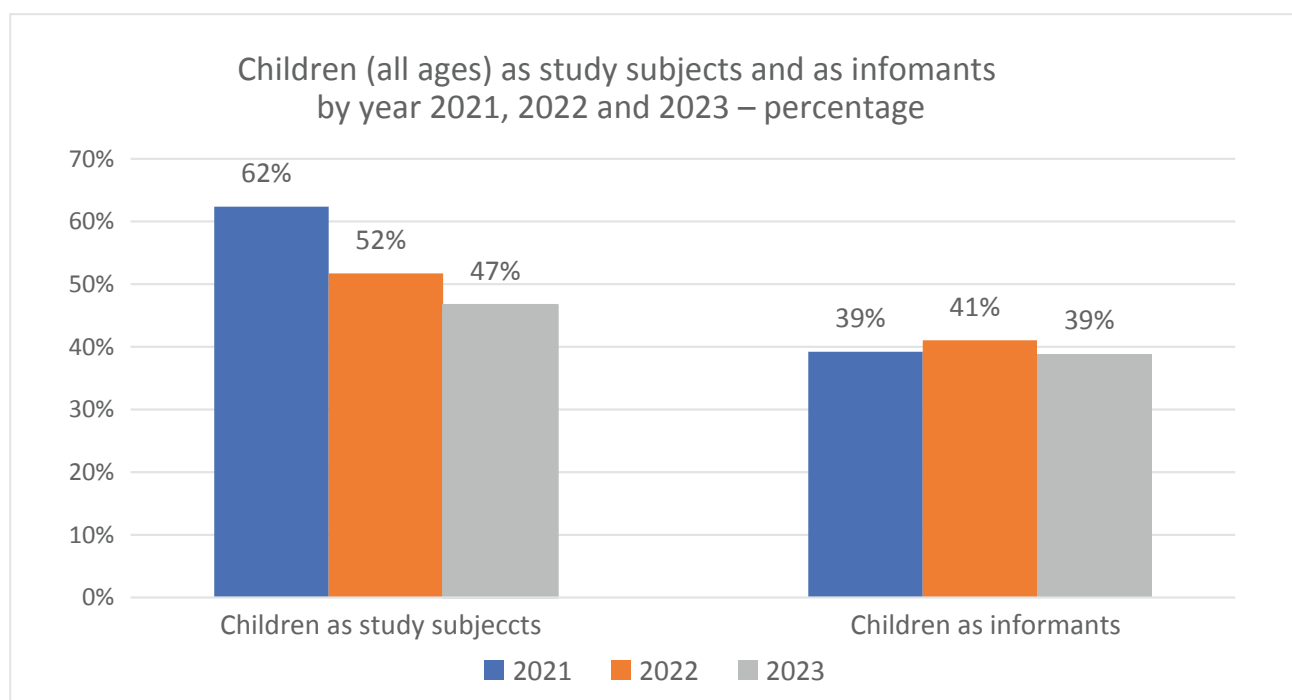


Figure 13: The proportion of studies that include children (in one or more age categories) as study subjects or as informants in 2021, 2022 and 2023 is shown as a percentage of the total number of studies for the year.

The proportion of studies involving children (all ages) as study subjects declines remarkably during these three years, while the proportion of studies involving children as informants remains fairly stable at 39–41%. (Figure 13). As mentioned in the previous review, the proportion of studies involving children as informants may be influenced by challenges in obtaining approval

to use children as interview or observation subjects due to ethical concerns related to children’s data protection. However, there is also an increasing emphasis on allowing children’s voices to be heard, both in society and in research (Ministry of Education and Research, 2018).

For 2022 and 2023, we see that there is also a decrease in the proportion of studies that focus on children compared to adult practitioners. In 2021, the difference was 2 percentage points (60% for practitioners and 62% for children), while in 2022 and 2023, the difference was 11 and 15 percentage points, respectively. Note that a study can have multiple study subjects.

Figure 14 shows the proportion of studies that involve children in the various age categories as informants.

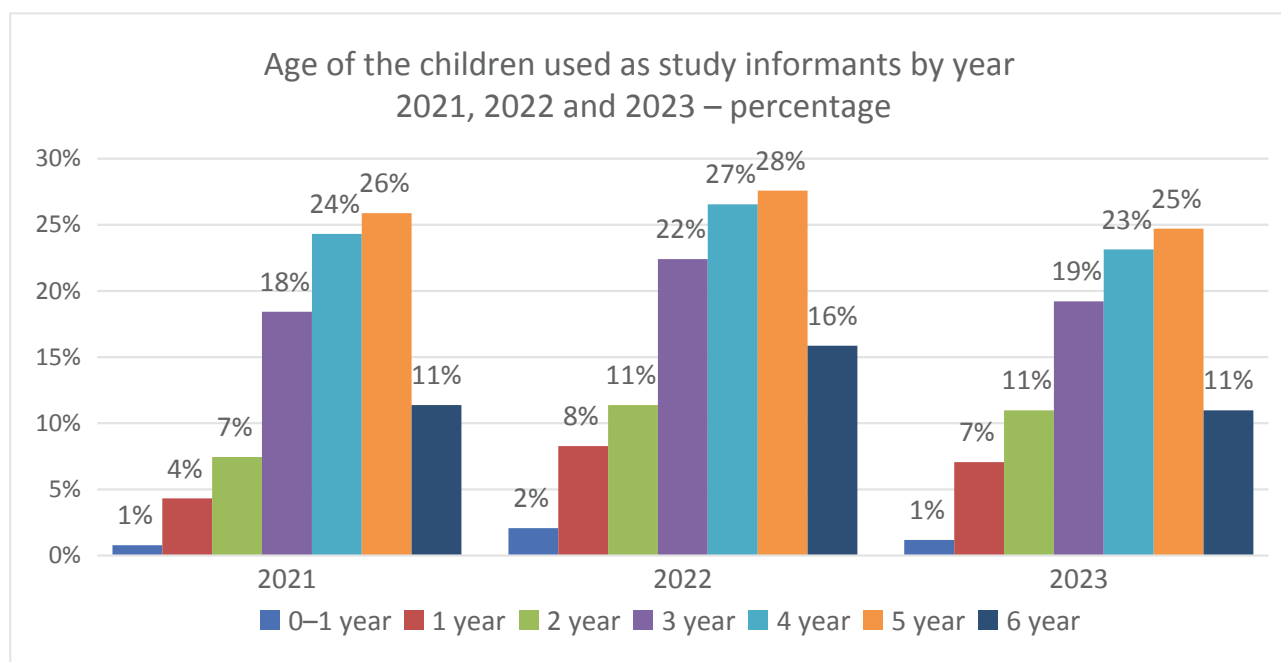


Figure 14: Distribution of the age categories of children used as study informants in 2021, 2022 and 2023 shown as percentage of all included studies for that year. It is possible to register multiple age groups for a single study.

From 2021 to 2023, there are variations in the vast majority of age groups. The oldest children (3–6 years) continue to be the informants most often used in the included studies, as we have also seen in previous reviews (Figure 11 Guldbrandsen et al. (2023)). Of these, five-year-olds were used in 26% of the 2021 studies, while four-year-olds, three-year-olds and six-year-olds were used in 24%, 18% and 11% of the studies, respectively, in 2021. In 2022, we see an increase for all age groups, while there is a decrease in all these age categories, except for 2-year-olds, from 2022 to 2023. Overall, we observe that the trend of having few studies where the youngest children are informants continues, as previous reports have also shown (Furenes et al., 2022), although the category for 1- and 2-year-olds has increased somewhat over the past two years. Another development in the past two years is a fluctuation in studies involving 6-year-olds, from 11% in 2021 to 16% in 2022, and back down to 11% in 2023. Although ECEC provision applies to children aged 0–6 years, it is common to all three Scandinavian countries that compulsory education begins in the year the child turns six years. This means that some children have already turned six when they start school or preschool class, while others turn six after starting their

compulsory education. This may mean that there are fluctuations in the proportion of six-year-olds attending ECEC facilities based on when during the year they were born.

3.6 Assessment of research quality in ECEC research

As in previous years, research quality has been assessed based on predefined criteria, as described in Chapter 2.4. The studies have been assessed as high, medium or low quality. The criteria for achieving high or medium quality are mainly based on whether the study has been reported with sufficient transparency and whether the researchers are able to answer the research questions through the study as it is described.

In 2022 and 2023, respectively, 95 and 74 studies were assessed as high quality, 124 and 114 studies were assessed as medium quality, and 71 and 68 studies were assessed as low quality. In Figure 15, which shows the percentage distribution of studies across the three quality categories, we can see that the majority of studies are still assessed as having medium quality. The proportion decreases slightly from 46% in 2021 to 43% in 2022, before increasing again to 45% in 2023. Otherwise, we still see fluctuations just above and below 30% in the proportion of studies assessed as high quality in the last three years. However, it is evident that there is a trend of a steady increase in the proportion of studies assessed as high quality since 2016, when the proportion was at 12% (Figure 11, Klippen et al., 2024). There is little change in the proportion of studies assessed as low quality compared to the previous report (2021), although we observe some fluctuations here as well. The proportion decreased from 27% in 2021 to 24% in 2022, before increasing again to 27% in 2023.

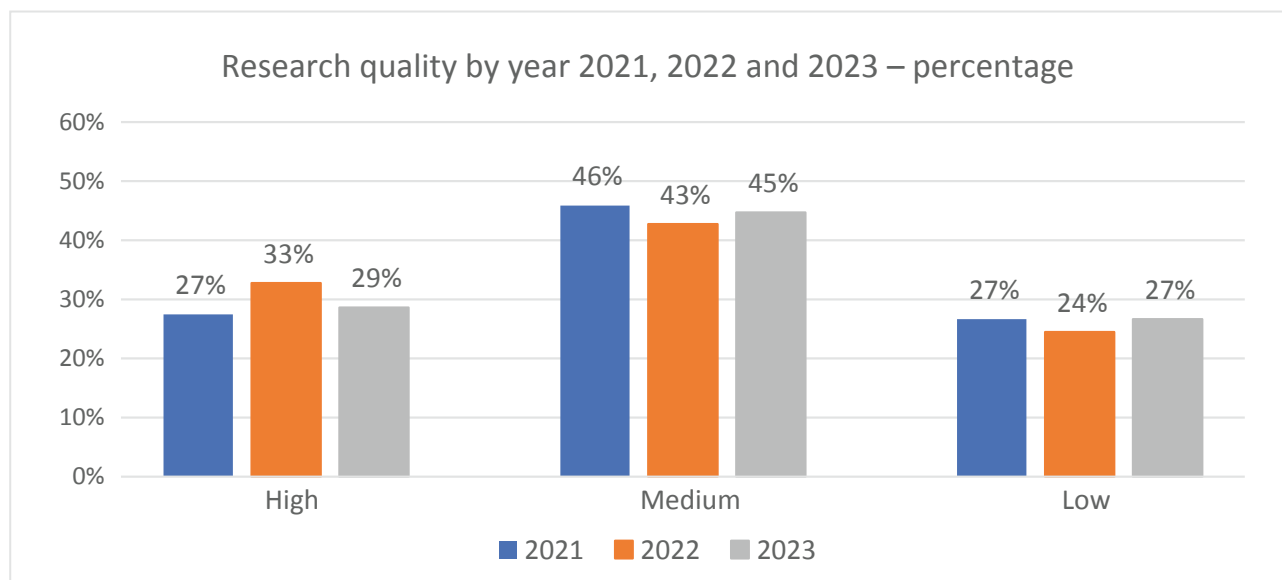


Figure 15: Overall assessment of the research quality of studies for 2021, 2022 and 2023. Only one assessment has been provided for a single study.

As described in the previous report (Guldbrandsen et al., 2024), as well as in a recently published systematic review (Klippen et al., 2024), the proportion of studies assessed as high, medium and low quality has fluctuated somewhat over the years. We observe that the fluctuations have been smaller in the last six reviewed years, during which the assignment has been handled by the same contractor. Figure 16 shows the development in assessed quality since 2018.

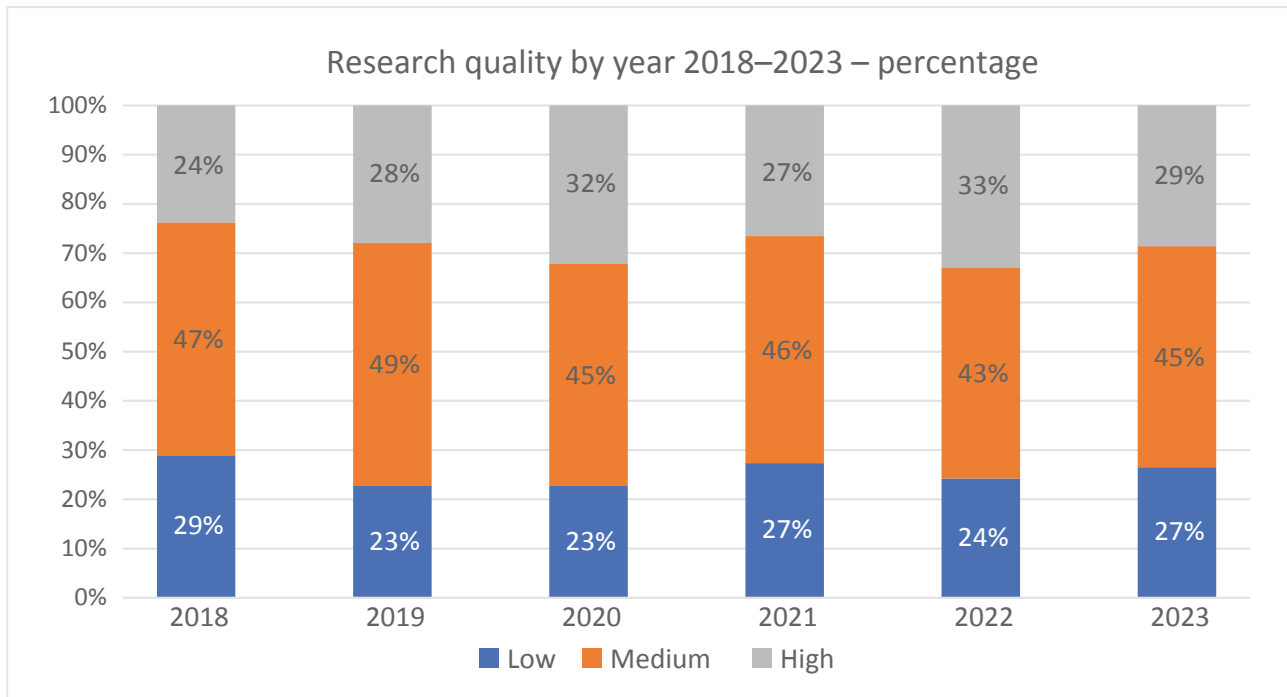


Figure 16: Overall assessment of the research quality of studies from 2018 to 2023. Only one assessment has been provided for a single study.

In summary, this year’s review shows small changes in the quality of Scandinavian ECEC research compared to the previous review. For both 2022 and 2023, there are differences in assessed quality based on the type of publication, research method, purpose, as well as language and country (Appendices 6–10). For 2022, 85 articles, 5 dissertations, 4 book chapters, and 1 report were assessed as high quality. Furthermore, 113 articles, 2 Ph.D. dissertations, 3 book chapters, and 6 reports were assessed as medium quality, while a total of 52 articles, 12 book chapters, and 7 reports were assessed as low quality. For 2023, a similar trend can be observed. A total of 70 articles, 1 dissertation, and 3 book chapters were assessed as high quality. Additionally, 102 articles, 1 Ph.D. dissertation, 8 book chapters, and 3 reports were assessed as medium quality, and 50 articles, 15 book chapters, and 3 reports were assessed as low quality. In summary, reports and book chapters are rarely assessed as high quality. This is expected, as reports and book chapters do not have the same requirements to adhere to scientific reporting standards.

For both 2022 and 2023, studies using quantitative methods were overall assessed as higher quality compared to studies using other research methods. In 2022, quantitative studies were assessed as high quality in 25 cases and medium quality in 17. Similarly, in 2023, 23 studies were assessed as high quality and 7 as medium quality. No studies using quantitative methods in these years were assessed as low quality. Qualitative studies were assessed as high quality in 52 cases, medium quality in 88, and low quality in 63 studies in 2022. In 2023, 35 qualitative studies were assessed as high quality, 96 as medium quality, and 62 as low quality. Studies that employed mixed methods had the following distribution: in 2022, 12 studies were assessed as high quality, 16 as medium quality, and 5 as low quality. In 2023, 10 mixed-method studies were assessed as high quality, 10 as medium quality, and 1 as low quality. For reviews, 6 were assessed as high quality, 3 as medium quality, and 2 as low quality in 2022. In 2023, the distribution for reviews was 6 assessed as high quality, 1 as medium quality, and 3 as low quality. It is also worth noting that one study in 2022 and two studies in 2023 did not explicitly report their research methods, and all of these were assessed as low quality.

The quality assessments reveal clear differences based on publication language. In both 2022 and 2023, most studies were published in English, and a large proportion of these received high-quality assessments. Among English-language studies, 40% (81 studies) in 2022 and 35% (61 studies) in 2023 were assessed as high quality, while low-quality assessments accounted for 20% (40 studies) in 2022 and 19% (33 studies) in 2023. Conversely, studies published in Danish, Swedish, and Norwegian had a higher proportion of low-quality assessments. In 2022, 56% (15 studies) of studies written in Danish were assessed as low quality, and only 7% (2 studies) were assessed as high quality. Among Norwegian-language studies, 23% (7 studies) were assessed as low quality, and 17% (5 studies) as high quality, while for Swedish-language studies, 32% (9 studies) were assessed as low quality, and 25% (7 studies) as high quality. In 2023, 11% (3 studies) of studies in Danish were assessed as high quality and 61% (17 studies) as low quality, while Norwegian-language studies had 17% (5 studies) assessed as high quality and 41% (12 studies) as low quality. Swedish studies in the same year had 22% (5 studies) assessed as high quality and 26% (6 studies) as low quality. Overall, we can once again conclude that English-language publications consistently receive higher quality assessments compared to Nordic-language publications year after year.

The quality assessments of studies from 2022 and 2023 also indicate that quality seems to be associated study purpose. In 2022, high-quality ratings were given to 53 descriptive studies, 31 studies exploring relationships, 5 reviews, and 6 «what works» studies. Low-quality assessments were most frequent among descriptive studies (58 studies, 28% of descriptive studies were assessed as low quality) compared to other study categories and least frequent among «what works» studies (1 study, 9%). In 2023, high quality was assigned to 41 descriptive studies (31%), 20 studies exploring relationships (49%), 6 reviews (67%), and 7 «what works» studies (58%). Overall, reviews and «what works» studies were most frequently rated as high quality, while descriptive studies had a higher proportion of low-quality assessments.

4 Summary and conclusion

The 2022 and 2023 review shows that a large amount of research on Scandinavian ECEC is still being published, and the quality of the studies is comparable to previous years' assessments. For 2022, we see a significant increase in the number of identified studies, while for 2023, the number is back at the 2021 level. This may be related to changes in indexing practices for publication years, so it is not appropriate to delve further into this. When looking at 2022 and 2023 together, there is a significant increase in the number of studies, a trend that dates back to 2006. For 2022, a total of 290 studies were included, with 43% assessed as medium quality, 33% as high quality, and 24% as low quality. A decrease in low and medium quality studies, combined with an increase in high quality studies, indicates a moderate increase in quality from 2021 to 2022. For 2023, a total of 256 studies were included (one more than in 2021). Of these, 43% were assessed as medium quality, 29% as high quality, and 27% as low quality. This is approximately at the same level as the proportion in 2021, and overall, it represents a relative decline in quality compared to 2022. The distribution across the three quality categories in the last six review years (2018-2023) has been relatively consistent, with small variations from year to year.

With regard to distribution according to country, we now see that Denmark has increased its proportion of studies from 2021 to 2023 by 5 percentage points, while the proportion of studies from Sweden has decreased by 7 percentage points during the same period. The proportion of studies from Norway increased by 3 percentage points in 2022, but then experienced a decline of 2 percentage points in 2023. However, Sweden continues to be the country contributing to most of the published studies, with 44% in 2022 and 41% in 2023, but the distribution between Sweden and Norway is now quite similar. Norway accounts for 41% of the studies in 2022 and 39% in 2023. Despite an increase over the last couple of years, Denmark continues to have the lowest proportion of studies, with 19% in 2022 and 23% in 2023. The proportion of studies from other countries has declined slightly from 10% in 2021, to 7% in 2022 and 8% in 2023.

In previous years, we have observed a clear trend where an increasingly larger proportion of the included studies is published in English (Furenes et al., 2022; Guldbrandsen et al., 2023; Guldbrandsen et al., 2024). However, the proportion of studies published in English is now decreasing, dropping from 73% in 2021 to 71% in 2022, and further down to 69% in 2023. At the same time, the proportion of Norwegian and Danish studies increased, both by 4% from 2021 to 2023, while the proportion of Swedish studies decreased from 11% to 9% over the same period.

Qualitative methods are once again increasing in the dataset, while the proportion of quantitative studies is decreasing. The proportion of studies using qualitative methods has increased by 6 percentage points from 2021 to 2023, while the proportion of quantitative studies has decreased by 4 percentage points. In 2023, there are more than six times as many studies using qualitative methods compared to quantitative ones. We have observed a steady decline in the use of qualitative methods from 2017 to 2020, but since then, the proportion of studies using qualitative methods has increased year by year. It is now at its highest level since 2017. Mixed-methods studies and reviews have shown no significant changes in the last three years, with both fluctuating around approximately 10% and 3-4%, respectively. Over the past ten years, the distribution between the different research methods registered has been fairly stable, but with some variations from year to year. Qualitative methods have been clearly dominant, comprising over 60% of the studies every year since 2013.

Regarding study design/type, there has been an increase in the proportion of view studies since 2021, and a decrease in case, observational and ethnographic studies. Historically, we see quite large fluctuations in these categories (Klippen et al., 2024), and this makes it difficult to speak of any trends that stand out.

Observation and interviews remain the most commonly used data collection methods in the studies. Otherwise, video, field notes and questionnaires are among the other most commonly used methods. At the same time, there has been a decline in the use of observation and questionnaires, with observation decreasing from 41% to 34% from 2021 to 2023. There are still very few studies that use different tests. We also see an increase in the other category, with 25% of the studies from 2023 and a total of 120 studies in 2022 and 2023 receiving this code. Many of these studies appear to use photography.

In 2022 and 2023, the purpose of the studies has clearly shifted towards more descriptive investigations, while the exploration of relationships and 'what works' has decreased. The proportion of reviews has increased slightly from the 2021 level, and descriptive studies continue to be strongly dominant. A total of 72% and 76% of the studies fall into this category in 2022 and 2023, respectively. We see that the proportion of studies investigating the relationship between variables and the effect of interventions in an ECEC context is low. This may be because ECEC research has traditionally focused on describing phenomena rather than studying the effects of interventions, and because studies exploring causal relationships are both resource-intensive and complicated to conduct in an ECEC context.

The majority of studies still investigate the topics of teaching and learning, pedagogical practices, and methodology in ECEC settings. Although the majority of studies focus on the topic of teaching and learning (40% in 2023), we also observe a decline in this topic in this review. Topics related to ECEC teachers and their practices, as well as aspects related to ECEC as an institution (content, politics), seem to receive increasing research focus, while topics related to children themselves do not show the same development. As in previous years, there are almost no studies investigating the economic aspects of ECEC.

The studies identified for 2022 and 2023 mainly focus on practitioners, followed by children of various ages and leaders/managers. A total of 62% of the 2023 studies focus on practitioners. We see a significant decrease in the proportion of studies with study subjects in the category of leaders/managers, which has halved since 2021. There is also a significant decline in most categories for children. The proportion of studies that focus on the youngest children is still low, as in previous years. Overall, there is now a lower proportion of studies focusing on children compared to studies focusing on adults.

Practitioners are also by far the largest group of informants in the included studies for 2022 and 2023, even when considering all categories of children combined. However, there has been some decline in the use of practitioners as informants since 2021, and the same trend is observed for leaders/managers and parents. At the same time, there is an increase in the use of the youngest children as informants, but the proportion is still relatively low (between 1 and 11%). In the studies using children as informants, 5-year-olds are the most commonly used (25% of the studies included for 2023 used 5-year-olds as informants), followed by 4- and 3-year-olds. The distribution among the different age groups of informants is largely similar to previous years,

but some variations have been observed over the last three years, especially for 6-year-olds. We can conclude that there are now fewer studies focusing on children, but there are only minor changes in the proportion of studies using children as informants.

In summary, this year's review shows some fluctuations but minor changes in the assessed quality of Scandinavian ECEC research compared to the previous review and the years since 2018. Most studies are still assessed as being of medium quality, while the proportions assessed as high and low quality are fairly evenly distributed. However, the proportion of high-quality studies is somewhat higher and appears to be increasing (Figure 11, Klippen et al., 2024).

As in previous years, for 2022 and 2023, there are also differences in assessed quality based on the type of publication, method used, language, country, and the study's purpose. Here, we see the same as in previous years: Journal articles and dissertations are consistently assessed higher than book chapters and reports. At the same time, there are still relatively large differences in the quality assessment depending on the research method and language used. Quantitative studies and studies in English are generally assessed higher than qualitative studies and studies written in Norwegian, Swedish, or Danish. For example, none of the quantitative studies included for 2022 and 2023 were assessed as low quality. This may be related to reporting traditions within the different methodologies. As in previous years, there are also significantly more studies from Sweden and Norway that are assessed as medium or high quality, compared to studies from Denmark.

Based on the review of empirical Scandinavian ECEC research in 2022 and 2023, we can conclude the following: There continues to be an increase in the number of published studies within Scandinavian ECEC research, but there are variations from year to year. The quality of the studies is comparable to previous years and we observe the same trends in differences in assessed quality based on publication type, methodology, language and country. The research is still dominated by descriptive studies, view studies, as well as observation and interviews as data collection methods. Qualitative methods are increasing, while quantitative methods are declining. There is also a decline in the use of English, which is surprising in light of previous reviews. In addition, we now see that Denmark accounts for a larger proportion of the studies than before, while the proportion from Sweden is decreasing. The studies primarily focus on practitioners, and to a lesser and decreasing extent, children in various age groups. The youngest children are still infrequently used as informants in the studies, although there has been an increase since the previous review.

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Appendices

Appendix 1 Project members

The following persons were responsible for screening titles, abstracts and full text

Astrid Guldbrandsen, Knowledge Centre for Education, University of Stavanger
May Irene Furenes Klippen, Knowledge Centre for Education, University of Stavanger
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Nina Kalvatn Friestad, Knowledge Centre for Education, University of Stavanger
Ling Guo, Knowledge Centre for Education, University of Stavanger
Maximiliaan W. P. T. Thijssen, Knowledge Centre for Education, University of Stavanger
Kjersti Velde Helgøy, Knowledge Centre for Education, University of Stavanger
Morten Njaa, Knowledge Centre for Education, University of Stavanger
Sanna Forsström, Knowledge Centre for Education, University of Stavanger
Enrico Pollarolo, FILIORUM, University of Stavanger
Marianne Ree, FILIORUM, University of Stavanger

The following people were responsible for coding and quality assessment:

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Elaine Munthe, Knowledge Centre for Education, University of Stavanger
Maximiliaan Thijssen, Knowledge Centre for Education, University of Stavanger
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The following people have helped write the summaries:

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Helene Urdland Karlsen, Knowledge Centre for Education, University of Stavanger

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Kine Luna Mikelsen, FILIORUM/Norwegian Reading Centre, University of Stavanger

Eli Marie Hoftun Kvæstad, Faculty of Arts and Education, University of Stavanger

The following people have developed the NB-ECEC Summary Assistant AI tool:

Morten Njaa, Knowledge Centre for Education, University of Stavanger

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

Appendix 2 Search string:

We have followed more or less the same protocol and search strategy as in previous years, but new for this year's review is the use of the same Scandinavian search string across all Scandinavian databases. This is because (1) we have not fully succeeded in clarifying the basis for selecting specific search terms used for the various databases, (2) we see that different national databases can accept studies in multiple Scandinavian languages, so relevant terms for kindergarten in all three languages should be included in all databases, and (3) it is necessary to align search strategies across databases to simplify both (3a) the execution and (3b) the understanding of the search strategy in the NB-ECEC project. We have also added a few more terms to the segment that restricts Scandinavian studies in the international databases. We now search for these terms in the title, abstract, keywords, and GE/Affiliate fields (TI, AB, KW, GE/Affiliate, where all these options are available, otherwise a free search in all fields, such as in ERIC). Previously, searches were limited to the GE/Affiliate field in some databases. This is because we believe the existing search strategy was not fully comprehensive in identifying all research on Scandinavian ECEC. For example, the previous search string would not necessarily identify articles about Scandinavian ECEC conducted in other countries, where none of the authors have a formal affiliation with an institution in a Scandinavian country. In addition, it is limited to 2022 and 2023, as these are the years currently being reviewed. The search is otherwise adapted to each database and the rationale for including it, considering limitations on document type, language, peer review, etc., as extracted from the individual databases. A detailed overview of the protocol for the specific searches in each database has been recorded and archived internally.

Various terms for kindergarten have been searched in the title, abstract, and keywords/subject terms/subject headings. The following terms have been used in searches in the national and international databases:

Scandinavian search terms: barnehage*, familiebarnehage*, førskole*, dagt*, daginstitusjon*, daghjem, förskole*, daghem, leksskola*, förskolepedagogik, familjedaghem, dagis, pedagogisk omsorg, børnehage*, dagpleje*, vuggestue*, småbørnspædagogik*, dagtilbud*, daginstitution*

English search terms: 'child care center', 'child care centre', 'child development center', 'child development centre', 'child* academic development', 'crèche', 'day care', 'daycare', 'day-care', 'early child* care', 'early child* education', 'early child* intervention*', 'early child* program*', 'early child* services', 'early education* provision', ecc, ecec, ece, kindergarten, 'nursery school', 'pre K', 'pre kindergarten', 'pre school', 'pre-K', 'pre-kindergarten', 'pre-primary education', 'preschool', 'pre-school', toddler*

Various terms have been searched to identify relevant countries in the title, abstract, keywords, and GE/Affiliate. The following terms have been used in searches in the international databases: denmark* OR norway* OR sweden* OR norwegian* OR danish OR swedish OR scandinavian* OR nordic*

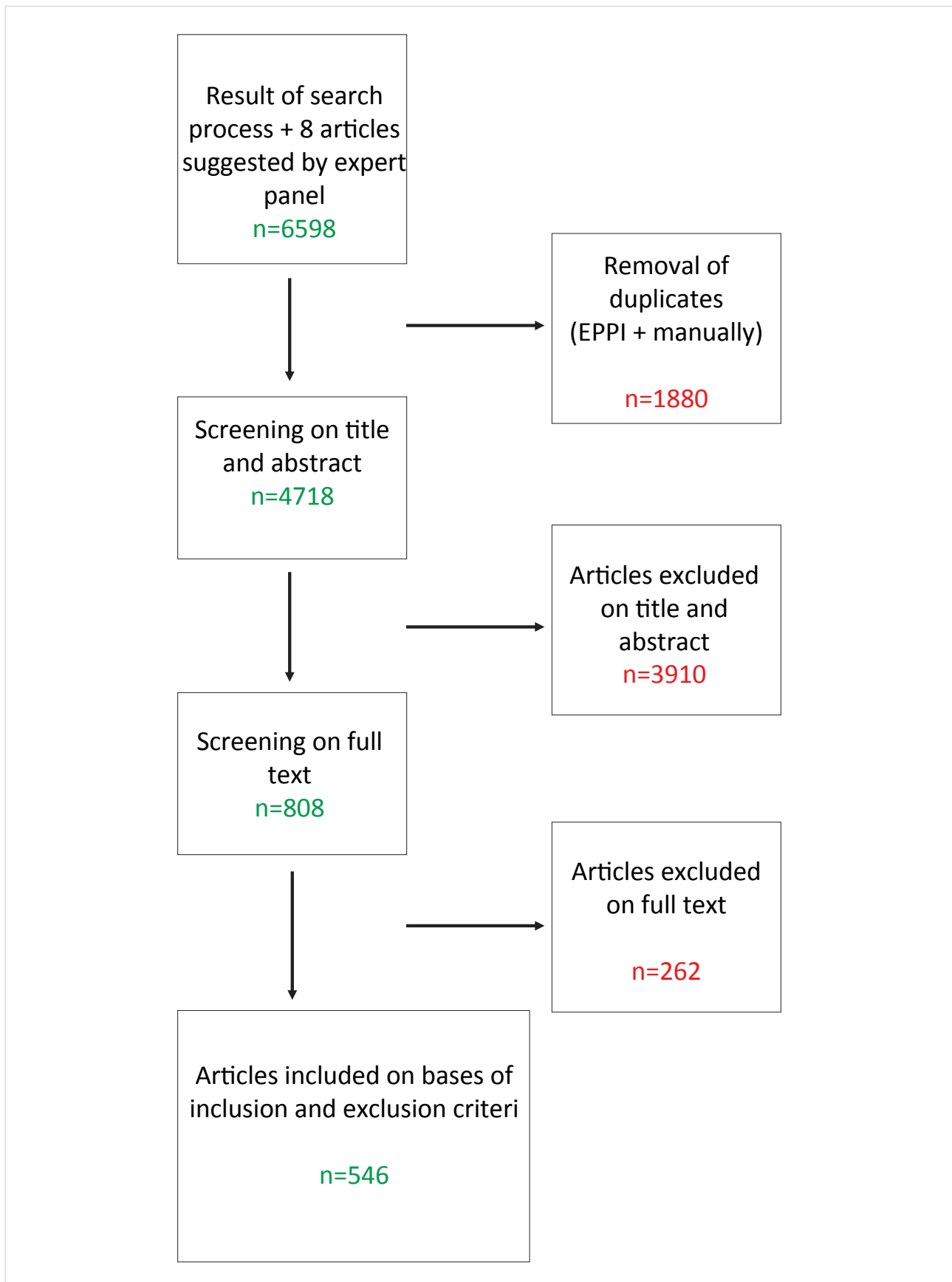
Appendix 3 Overview of databases and number of hits:

This year, we have conducted a review and reassessment of the relevance of all the databases used and the journals we manually search in. Some databases and journals have been removed, primarily because they are covered by other databases or have been discontinued, while other new ones have been added. A detailed description and reasons regarding the selection of databases and journals have been documented in a comprehensive search protocol. Information about specific choices made can be provided upon request.

Source	Note	Dato søk	Treff 2022	Treff 2023	2022 +2023
Barn*		7.3.24		1	1
Bibliotek.dk	Scandinavian	7.3.24	192	208	400
DIVA	Scandinavian + English	4.3.24	208	179	387
Educare* (NEW 2024)	Manually searched English Only new unique results have been added	11.3.24	5		5
ERIC	English	5.3.24	190	151	341
Forskningsportal.dk (NEW 2024)	Scandinavian	4.3.24 + 14.3.24	241	211	452
Idunn	Scandinavian	1.3.24	12	14	26
Libris	Scandinavian	1.3.24	80	66	146
NAFOL*		7.3.24	0	0	0
NORA	Scandinavian	7.3.24	4	11	15
Nordisk barnehageforskning	Covered other databases	11.3.24			
Nordisk tidsskrift for Pedagogikk og Kritikk*		11.3.24	0	0	0
ORIA	Scandinavian + English	7.3.24 + 14.3.24	384	339	723
Paideia*	Covered other databases	7.3.24			
Pædagogisk Psykologisk Tidsskrift*	Covered other databases Behind paywall	7.3.24			
SwePub	Scandinavian + English	1.3.24 + 14.2.24	169	167	336
Scopus	English	7.3.24	1442	1295	2737
Web of Science	English	5.3.24	509	512	1021
Proposed by expert panel			1	7	8
Total			3437	3161	6598

Sources highlighted using * were searched manually

Appendix 4 Summary of the search and screening phase

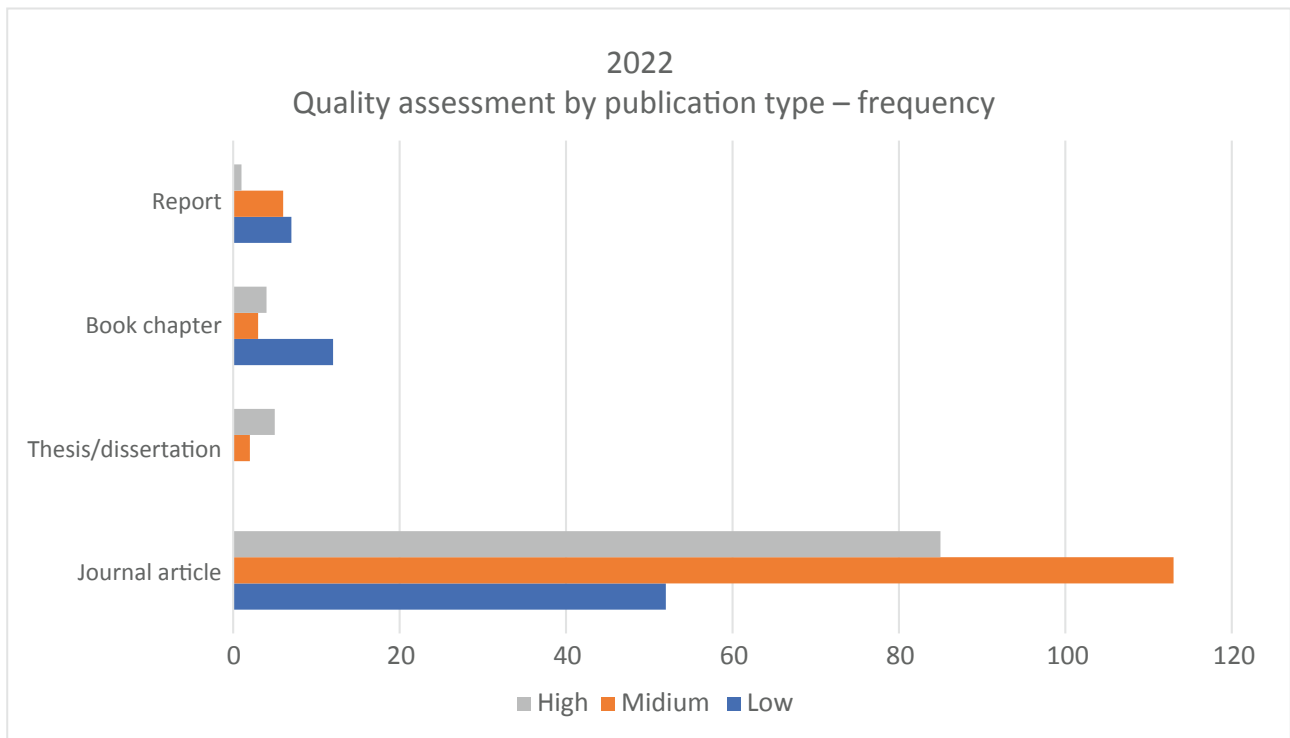


Appendix 5 Overview of the reasons for excluding articles during screening

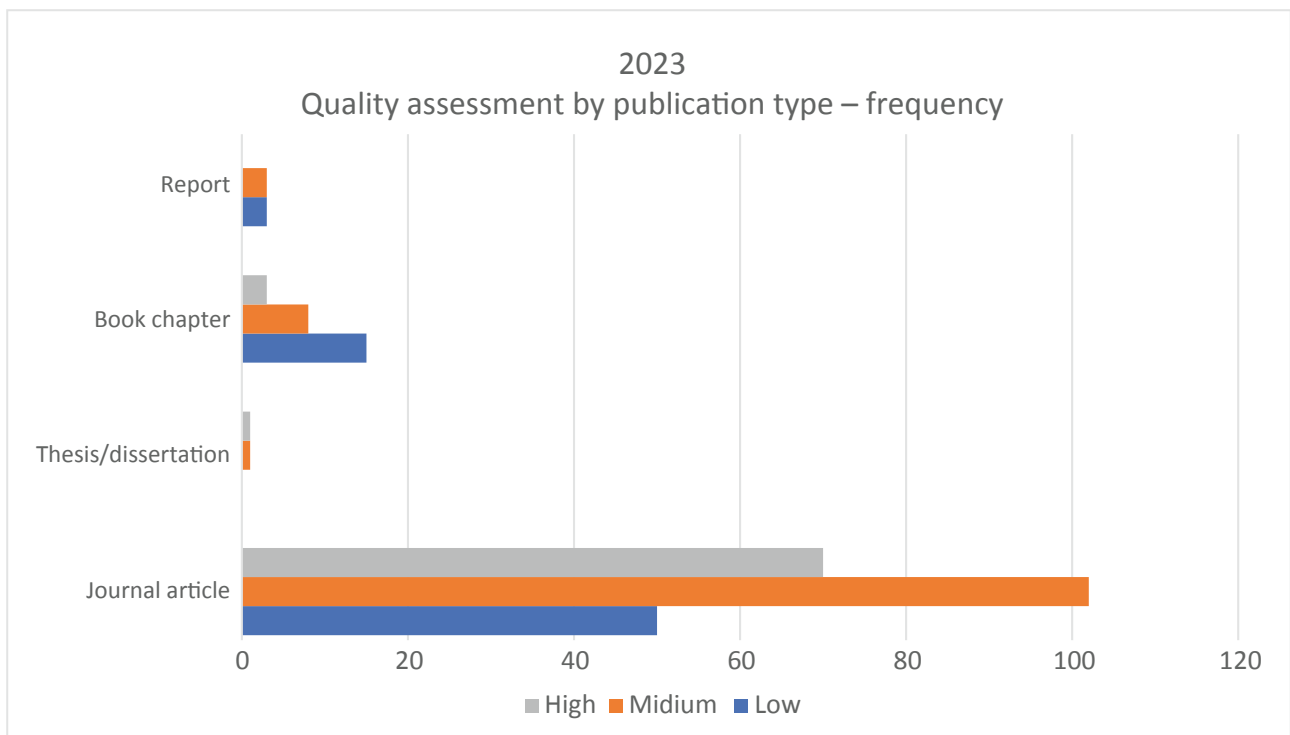
Reason	Title and abstract	Full text	Total
Subject/topic	2759	47	
Year of publication		8	
Country	193	20	
Target group	182	16	
Evidence	101	39	
Type of publication	646	53	
Full text unavailable/not received by deadline		45	
Duplicate	29	34	
Total	3910	262	

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 according to type of publication

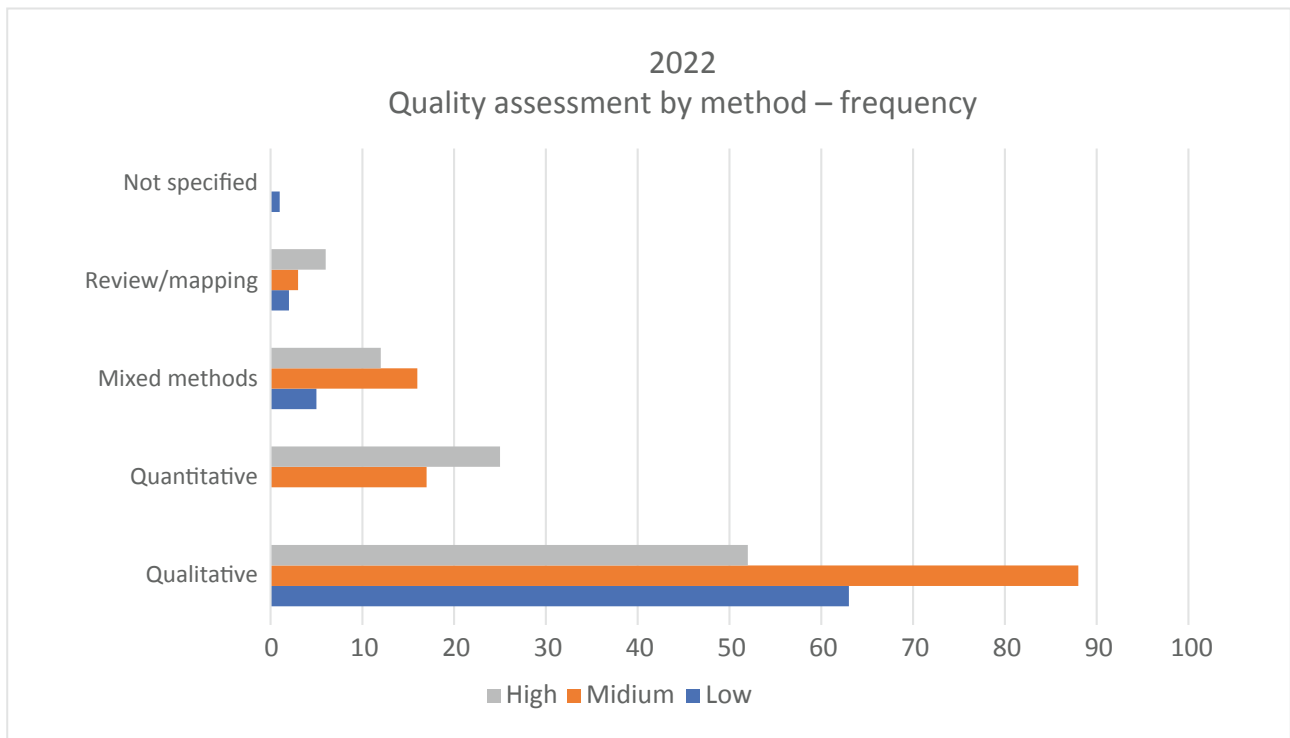


Quality assessment according to type of publication 2022. Only one assessment has been provided for a single study. No studies categorized as review/mapping studies this year

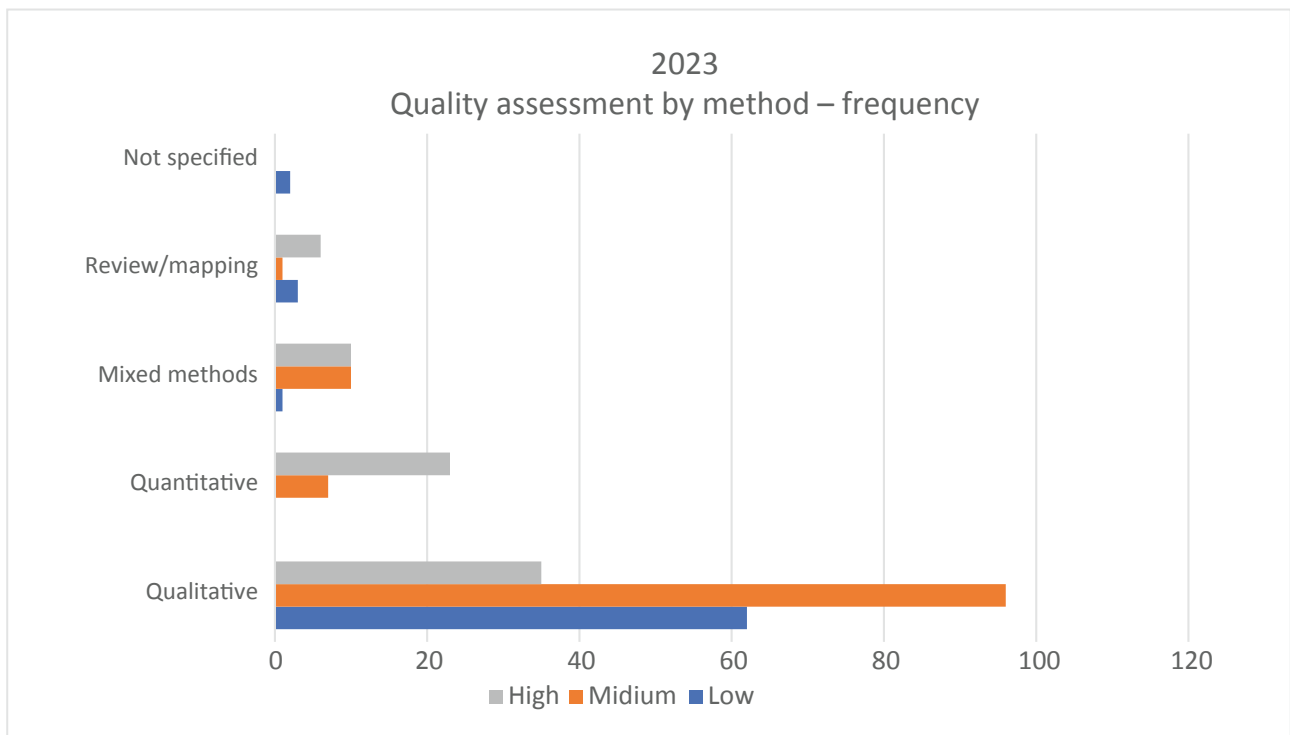


Quality assessment according to type of publication 2023. Only one assessment has been provided for a single study. No studies categorized as review/mapping studies this year.

Appendix 7 Quality assessment according to method

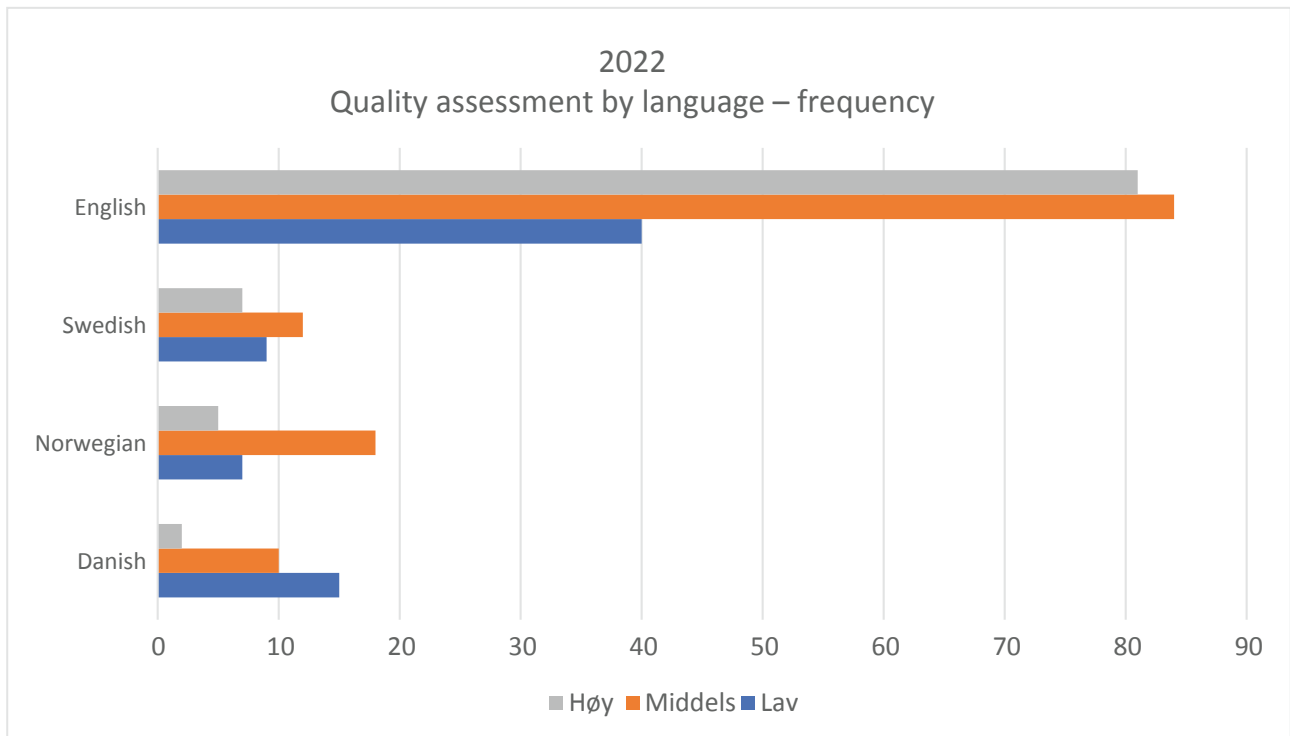


Quality assessment according to research method 2022. Only one assessment has been provided for a single study.

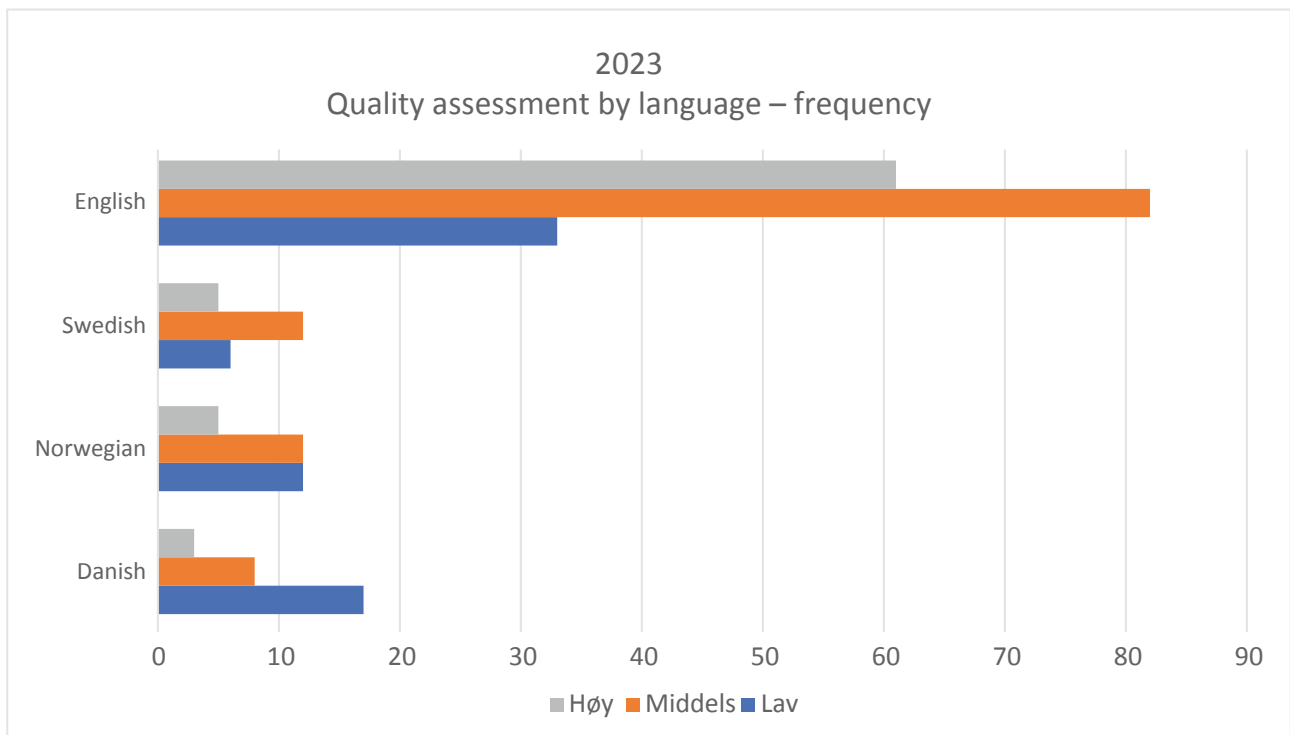


Quality assessment according to research method 2023. Only one assessment has been provided for a single study.

Appendix 8 Quality assessment according to publication language

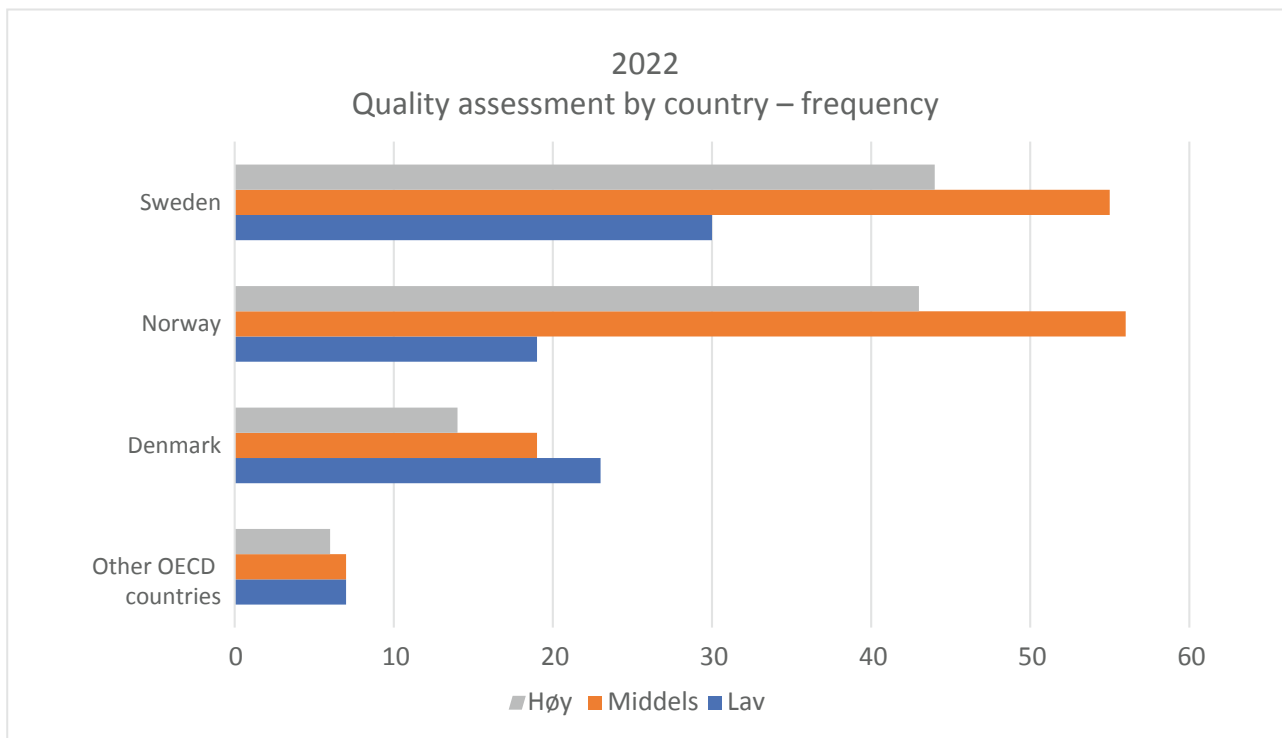


Quality assessment according to publication language 2022. Only one assessment has been provided for a single study

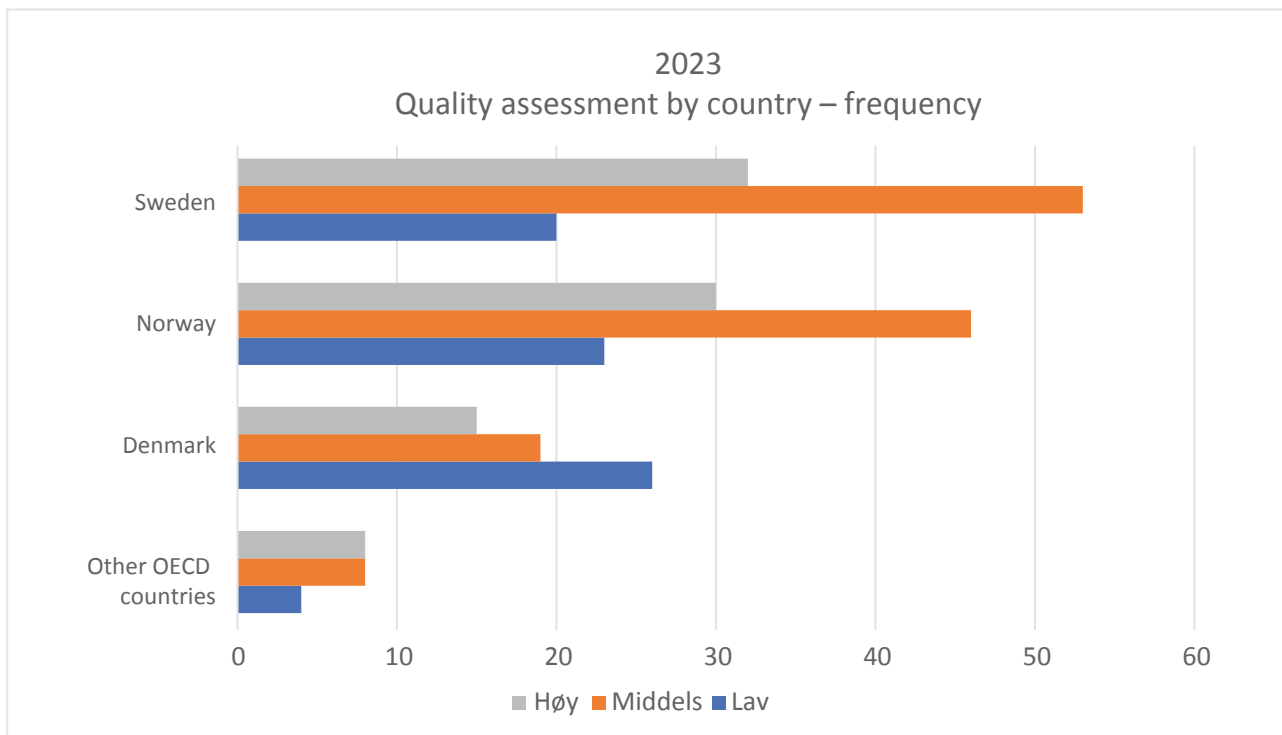


Quality assessment according to publication language 2023. Only one assessment has been provided for a single study.

Appendix 9 Quality assessment according to country

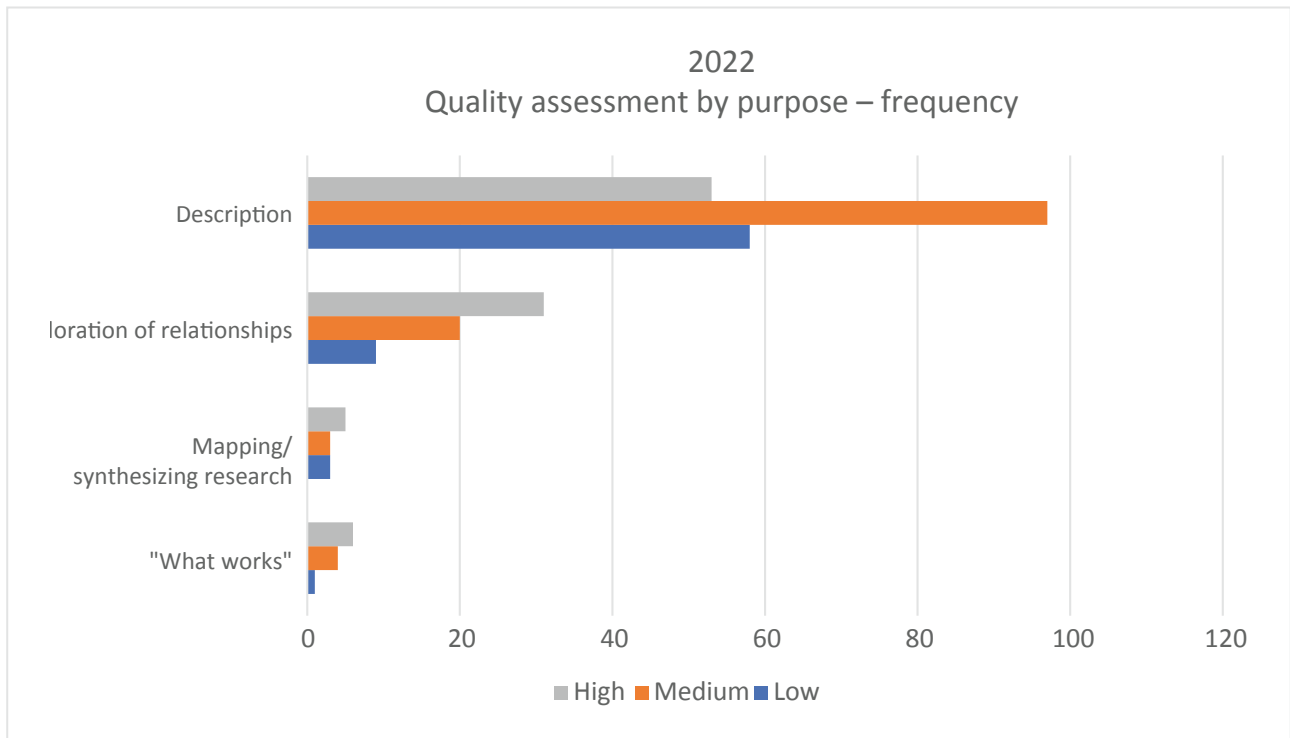


Quality assessment according to study country 2022. It is possible to register multiple countries for a single study.

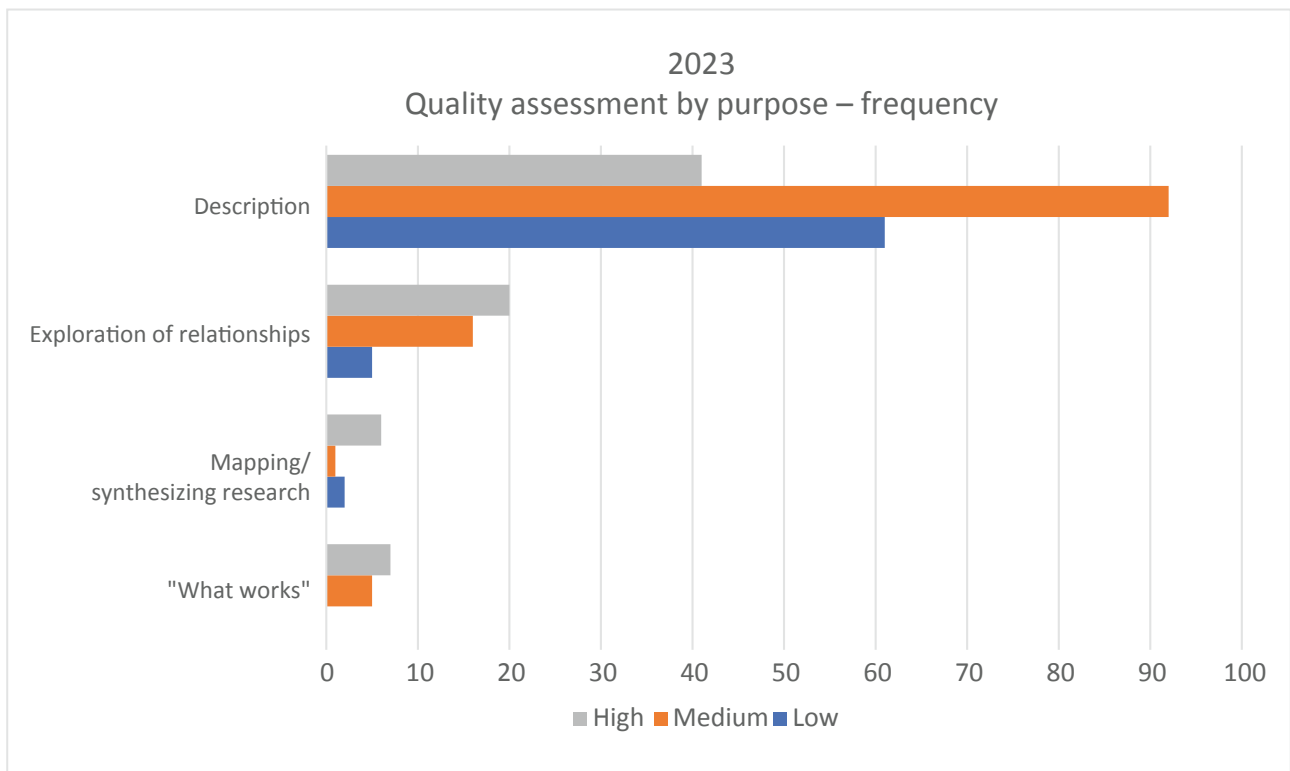


Quality assessment according to study country 2023. It is possible to register multiple countries for a single study.

Appendix 10 Quality assessment according to study purpose



Quality assessment according to study purpose 2022. Only one assessment has been provided for a single study.



Quality assessment according to study purpose 2023. Only one assessment has been provided for a single study.

Appendix 11 List of all 290 studies included for 2022 (high, medium and low quality)

- Adbo, K. (2022) Emergent Chemistry: Using Visualizations to Develop Abstract Thinking and a Sense of Scale Within the Preschool Setting In: Ortega-Sánchez, Delfín (ed.), *Active Learning – Research and Practice for STEAM and Social Sciences Education*. IntechOpen
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Appendix 12 List of all 256 studies included for 2023 (high, medium and low quality)

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REVIEW OF RESEARCH AND ASSESSMENT

Empirical research on Scandinavian early childhood education and care in 2022 and 2023

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Distribution: Knowledge Centre for Education,
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Report No. 1/2025, Knowledge Centre for Education
ISBN 978-82-8439-329-2