

The methodological basis of the research survey

The research survey consisted of the following phases: 1) Systematic searches in relevant databases and specific searches for publications from 2020, 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.

Literature searches

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

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

Inclusion and exclusion criteria

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

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

textbooks, policy documents, anthologies, evaluations, experiment and development work, as well as research with a focus on the development of trials and methodologies, are also not included.

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

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

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

Topic: The research question of the study is aimed explicitly at aspects of relevance to ECEC. Studies that deal with children, parents and/or educational perspectives have been included.

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

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

Screening

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

All 2,771 studies identified through systematic searches in Scandinavian and international databases and journals have been read by two researchers that have assessed each study independently of one another. Firstly, two researchers screen the title and abstract in order to exclude any studies that do not meet the inclusion criteria. The articles are subsequently read in full. Those that do not meet the inclusion criteria are excluded. Disagreements relating to the exclusion of relevant studies during the screening phase are discussed by two independent individuals in order to reach a joint decision. After the screening process had been completed, the Scandinavian panel of experts had the opportunity to review all included studies and propose research publications that were not identified during the search process. A further two articles from 2020 were therefore included for further data extraction and assessment. See appendix 4 for a summary of the search and screening phase, as well as the survey of relevant

studies. See also appendix 5 for a comprehensive overview of the grounds for excluding articles.

Coding and assessment of quality

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

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

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

As mentioned, the quality assessments were conducted by two independent researchers. One of these was an internal researcher from the Knowledge Centre for Education and the other

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

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

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