

DATA MANAGEMENT PLAN**Administrative information about the research project/study**

- **Name of the project/study** < Study: Patterns of Observed Child Participation and Proximity to a Small Group with Teacher in Swedish Preschool Free Play. Project: PARTICIPATION AND ENGAGEMENT IN PRESCHOOL INTERNATIONAL (PEPI) >
- **Short description of the project** < This study aimed to explore children's observed participation patterns in Swedish preschool free play (N = 453) based on quantitative observational data and a person-oriented method of analysis, and to examine the characteristics of the resulting clusters in terms of child and preschool unit characteristics. The dataset is a combination of data collected from two projects, the PEPI project and the TUTI project both initiated at the School of Education and Communication, Jönköping, Sweden. >
- **Keywords** < preschool; participation; involvement; inclusion; engagement; free play; special needs; second language; person-oriented; cluster; observation; mother tongue; language; activity; special support; preschool children; pre-primary schools>
- **Funding body/bodies** < Swedish Research Council, FORTE, The National Board of Health, and Welfare >
- **Accountable authority** < School of Education and Communication, Jönköping University >
- **Organisation (affiliation)** < CHILD research group; School of Education and Communication, Jönköping University >
- **Project leader** <Eva Björck (PEPI); Mats Granlund (TUTI)>
- **Contact person (research data)** <Frida Åström>
- **Participants in the project** <Frida Åström, Lena Almqvist, Eva Björck, Mats Granlund, Madeleine Sjöman, Anna Karin Axelsson, Maria Hultin >

1. Description of data – reuse of existing data and/or production of new data

How will data be collected, created, or reused?

What kind of data will be created and/or collected as regards data/file format and quality/volume?

< Note: The datasets need to be opened from within the respective reading program, e.g., SPSS or ROPstat. Open the program first, then select file, then open, locate the file, and open. The files cannot be opened by double-clicking on the dataset directly. The dataset is a combination of data collected in the PEPI project and the TUTI project. Data was collected with systematic observations with the help of the manual-based instrument Child Observation in Preschool (COP) created in the U.S. and adapted to the Swedish preschool context. Observations were performed in autumn of 2014 (TUTI), and autumn 2015 and spring of 2016 (PEPI). A combined observational manual “COP Manual_TUTI+PEPI_20180830” för COP för the TUTI/PEPI studies was created by Frida Åström (PEPI) and Madeleine Sjöman (TUTI) in 2018 to align the two datasets as the two projects used different versions of the COP manual. For this study, a series of systematic instantaneous observations á 3 seconds (M = 19.50, SD = 8.40) of individual children (n = 453) with a minimum age of 36 months, were carried out continuously for 1-2 full days in 56 preschool units in southeast Sweden. Only observations where the overall activity (activity setting) was free play (indoors and outdoors) were used in this study.

Data was also collected on child characteristics (age, gender, need for special support, receiving mother tongue support) answered by preschool staff in autumn of 2015 and the same questionnaire in the spring of 2016 around the same time as observational data collection. Preschool unit characteristics was also collected (number of children, number of staff, number of children with mother tongue support, number of children in need of special support, number of resource staff) and answered by the preschool director / principal in the autumn of 2015.

Observational data and questionnaire data were merged into the same dataset to enable the analyses. The summed systematic observations resulted in frequency data for four types of activities; pretend play, associative / cooperative interactions, proximity to a small group incl. teacher, and level of engagement (level of focus or effort in the activity) and were selected as important based on the Swedish preschool context and previous research. Proportions (divided by the individual's total number of observations in free play) of the individual activities were calculated. The four proportion variables were used in a series of cluster analyzes to find distinct and interpretable clusters or patterns of participation where the children in a cluster were highly similar in all variables, and at the same time were very different from children in the other clusters. The clusters were then compared based on child characteristics (age, gender, need for special support, receiving mother tongue support) answered by preschool staff, and preschool unit characteristics (number of children, number of staff, children / staff ratio, number of children with mother tongue support, number of children in need of special support, number resource staff) answered by the preschool director / principal, to see if certain characteristics were more common in some clusters than in others. >

2. Documentation and data quality

How will the material be documented and described with associated meta data and collection methods?

<The data for this study and related materials have been described by Frida Åström and discussed and reviewed by Daniel Gunnarsson, librarian with responsibility for open access to research data, Jönköping University. Oscar Westergren, data protection officer at Jönköping University has also been consulted. Data, meta-data and material used in the study is stored by the central function for archives at Jönköping University. The data underlying this study cannot be made publicly available as the data contain sensitive personal data and is protected by the GDPR. To adhere to the FAIR research principles, meta-data and the requirements to access the data such as a confidentiality review and approved ethical review application will be made available in the Swedish National Data Service. <https://snd.gu.se/en> >

3. Storage and back-up

How shall we ensure storage and back-up of data and meta data during the research process?

< During the research process, the data and related material has been stored in the cloud-based service JU Sharefile/Citrix, recommended by the IT department. It ensures back-up and hosting of the servers and access are only provided to researchers working in the study. The paper-based data is stored in locked fireproof cabinets at the School of Education and Communication. Both digital and paper-based data has been safeguarded by pseudonymization. Personal data such as code keys and consent forms are stored in a separate cabinet from the data. Frida Åström has the key for this cabinet. The data and related material for this study are archived by the central function for archives at Jönköping University registrator@ju.se and to access the material requires confidentiality review and approved ethical review application. >

4. Legal and ethical aspects

How shall we ensure data security and controlled access to data regarding, for instance, management of sensitive and personal data?

How shall we ensure that the data is handled according to the legal rules for personal data, confidentiality, and intellectual property rights?

How is the data collected and managed from a perspective of ethical principles?

< The data has been stored in the cloud-based service JU Sharefile/Citrix recommended for data including personal and sensitive information and sharing across approved researchers in a project. This ensures back-up and hosting of the servers and access limited to researchers working in the study. The paper-based data is stored in locked fireproof cabinets at the School of Education and Communication. Both digital and paper-based data has been safeguarded by pseudonymization. Personal data processing is documented in the GDPR register at the School of Education and Communication and is regularly enquired by the data protection officer. Data such as code keys and consent forms are stored separately from the data. The data and related material for this study are archived by the central function for archives at Jönköping University registrator@ju.se. The data contains personal and sensitive information that together and/or with the help of the existing code key can enable tracking of an individual and is therefore protected by the GDPR. To request access to the data involves a confidentiality review and an approved ethical review application.

This study was approved by the Regional Ethical Review Board in Linköping, Reference No 2014/479-31, and 2012/199-31. Informed consent was collected from caregivers of all children. Preschool teachers were informed about the study aim and design and could withdraw their study participation at any time. Preschool directors agreed to arrange time for teachers to respond to child questionnaires. Preschool teachers and observers informed children about the aim of the observations and children could decline to be observed. No child was observed during toileting/diaper change. >

5. Availability and long-term preservation

In what way is long-term conservation ensured and by whom? How will data selection for long-term preservation be made?

Will special systems, software, source code or other types of services be required to be able to understand, take part in or use/analyze data in the long term?

Will research data or information about data (metadata) be made available?

< Data, meta-data, and materials used in the study are archived by the central function for archives at Jönköping University, registrator@ju.se and ensures long-term preservation. File formats have been chosen after consulting the guides on data preservation provided by the Swedish National Data Service (<https://snd.gu.se/sv/hantera-data/guider/att-valja-filformat>). The following file types are used: MS Word (.docx); PDF/A (.pdf); SPSS portabel (.por). To use or analyze the data requires the programs IBM SPSS Statistics or equivalent, and ROPstat <https://doi.org/10.17505/jpor.2015.09>, or equivalent. The data, meta-data, and related material has been described by Frida Åström. Meta-data has been discussed and reviewed by Daniel Gunnarsson, librarian with responsibility for open access to research data, Jönköping University, and Oscar Westergren, data protection officer at Jönköping University. The data contains personal and sensitive information that together and/or with the help of the existing code key can enable tracking of an individual and is therefore protected by the GDPR. To request access to the data involves a confidentiality review and an approved ethical

review application. To adhere to the FAIR research principles, meta-data of the study will be made available in Swedish National Data Service, <https://snd.gu.se/en>.>

6. Responsibilities and resources

Who is responsible for data management, continued management, and long-term preservation after project completion?

<The School of Education and Communication is the ultimate responsible for the research data. Eva Björck is the overall project leader. For this study, Frida Åström, as the first author of the study, was responsible for data management, such as storing the data in recommended ways, ensuring back-up and restricted access, preparing the data, meta-data, and materials for archiving, and for the data material to be FAIR; Findable, Accessible, Interoperable, and Readable. To this aim, publication of the meta-data will be done in the research data catalogue at the Swedish National Data Service <https://snd.gu.se/en>, and the data and related materials were archived by the central function for archives at Jönköping University, registrator@ju.se. Daniel Gunnarsson, librarian and responsible for open access to data at Jönköping University and Oscar Westergren, data protection officer at Jönköping University was consulted during this process. Frida Åström is the contact person for the study data.>