Plan Overview

A Data Management Plan created using DMPonline.be

Title: DMP project PDMT2/24/036

Creator: Suzanne Splinter

Principal Investigator: Suzanne Splinter

Affiliation: KU Leuven (KUL)

Template: KU Leuven BOF-IOF

Principal Investigator: Suzanne Splinter

Project abstract:

Preschoolers' instructional language development, and especially in the mathematics domain (i.e., mathematical language), is foundational for their academic performance. However, fostering this development by providing a high-quality language environment poses challenges. Specifically, preschool teachers must deliver developmentally appropriate adaptive teaching in informal and increasingly demographically diverse classrooms. Adaptive teaching involves offering meaningful interactions—comprising teacher initiation, child response, and teacher follow-up—along with the planning and preparation of these interactions. The current project aims to (1) analyze adaptive teaching quality in demographically diverse classrooms and its association with preschoolers' mathematical language development, and (2) evaluate the effectiveness of a professional development program for enhancing preschool teachers' competence in this regard. In the first study (Work Package [WP] 1), we will examine adaptive teaching quality during shared book reading activities with preschoolers from both demographically disadvantaged and advantaged backgrounds, as well as analyze its association with preschoolers' mathematical language growth. In the second study (WP 2), we will evaluate the effectiveness of a professional development program to increase teachers' adaptive teaching quality when sharing picture books in the mathematics domain with demographically disadvantaged preschoolers.

The PDM project focuses on a pilot version of WP1, investigating adaptive teaching quality during shared book reading activities with preschoolers from both demographically disadvantaged and advantaged backgrounds.

ID: 211950

Start date: 17-12-2024

End date: 31-10-2025

Last modified: 13-01-2025

DMP project PDMT2/24/036

Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data.

Dataset name / ID	Description	New or reuse	Digital or Physical data	Data Type	File format	Data volume	Physical volume
		*Indicate: **N**(ew data) or **E**(xisting data)*	Indicate: **D**(igital) or **P**(hysical)	Indicate: **A**udiovisual **I**mages **S**ound **N**umerical **T**extual **M**odel **SO**ftware Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
VIDEO_PBR	Videorecordings of picture book reading sessions (sessions 1 and 2)	E	D	A	.mp4	<1TB	
TRANS_PBR	Transcriptions of videorecordings of picture book reading sessions (sessions 1 and 2)	E	D	T	.xlsx	<1GB	
CODE_PBR	Codings of transcriptions of videorecordings of picture book reading sessions (sessions 1 and 2)	E	D	N/T	.xlsx	<1GB	
VIDEO_INTERVIEW	Videorecordings of interview with teachers	E	D	A	.mp4	<1TB	
TRANS_INTERVIEW	Transcriptions of videorecordings of interview with teachers	E	D	T	.xlsx	<1GB	
CODE_INTERVIEW	Codings of transcriptions of videorecordings of interview with teachers	E	D	N/T	.xlsx	<1GB	
PREP_INTERVIEW	Selection of videofragments of PBR sessions to prepare for interview	E	D	T	.docx	<1GB	
PICTUREBOOKS	Digital versions of picture books (already shared with teachers)	E	D	Other (digitilized picture book)	.pdf	<1GB	
PERSONAL_TEACHER	Personal information of participating teachers	E	D	T/N	.xlsx	<1GB	
SCHOOLS	Information about the participating schools (including SES level)	E	D	T/N	.xlsx	<1GB	
IC	Informed consents of participating children	E	P	T			< 1m3
SPSS	SPSS files containing all data ready to be analyzed	E	P	S/N	.sav	<1GB	

If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type:

We utilize data collected in 2024 by two master's thesis students, Valerie Oostvogels and Aline van den Bosch. The data has not yet been published in any form, and the master's thesis is still in progress. This thesis project is integrated within the scope of the

current research project, with the principal investigator, Suzanne Splinter, serving as the daily supervisor for the master's thesis work.

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, refer to specific datasets or data types when appropriate and provide the relevant ethical approval number.

- Yes, human subject data (Provide SMEC or EC approval number below)

PRET approval number: G-2023-7248-R5(AMD)

Will you process personal data? If so, please refer to specific datasets or data types when appropriate and provide the KU Leuven or UZ Leuven privacy register number (G or S number).

- Yes (Provide PRET G-number or EC S-number below)

We collected the following data:
Data on teachers:

- age
- gender
- years of educational experience
- highest education
- video recorded interviews about teachers' interactions during picture book reading.
- video recordings of the reading moments in which children's back and voice and teachers' hands and voice are recorded. An audio recording is not sufficient, since gestures can play an important role in the interpretation of the utterances for this study. (For instance, teachers or children pointing to the colors on the page needs to be registered to be able to give correct codes to the data.)

Data on children:

- home language
- birth date
- gender
- highest education of the parents

PRET approval number: G-2023-7248-R5(AMD)

Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, …)? If so, please comment per dataset or data type where appropriate.

- No

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material or Data transfer agreements, Research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.

- Yes

The digital picture books are developed by a research team from Purdue University (PI David Purpura). These books may not be shared openly.

Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain in the comment section to what data they relate and which restrictions will be asserted.

- No

Documentation and Metadata

Clearly describe what approach will be followed to capture the accompanying information necessary to keep data understandable and usable, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, codebook.tsv etc. where this information is recorded).

The following files will be saved in the same folder as the dataset:

- Project documentation will be provided in a README file. This file will include the project name, keywords, name of involved researchers and their ORCID ID, name of funder, funding code, start- and end date of the project, approval/registration code of ethical committee, links to publications.
- The ethical application will be saved as a PDF document and the approval/approval code will be added to the project documentation.
- An empty informed consent form will be provided as a word file.
- The data management plan will be provided as a pdf file.
- Information on the variables in the dataset will be provided in SPSS and / or R.
- The data preparation and statistical analyses will be documented in an annotated analysis code file (e.g., SPSS syntax, R code file). The version of the used software will be documented in SPSS and / or R.
- A word document will be created describing the recruitment strategy, the participant inclusion criteria, instructions and procedure of the study, technical specifications/set up details, software versions, observation and/or interview protocol, coding scheme etc. used in the study.

Will a metadata standard be used to make it easier to find and reuse the data?
If so, please specify which metadata standard will be used.

If not, please specify which metadata will be created to make the data easier to find and reuse.

- Yes

We plan to store the data via KU Leuven Research Data Repository, where DataCite is used as a metadata standard. Project metadata are also saved in a readme file (see also documentation above).

Data Storage & Back-up during the Research Project

Where will the data be stored?

- OneDrive (KU Leuven)
- Other (specify below)

During the duration of the project, all data will be stored on the KU Leuven OneDrive of the post-doctoral researcher on the project, Suzanne Splinter.
Analogue data (such as informed consent forms) will be stored in a locked cupboard.

How will the data be backed up?

- Standard back-up provided by KU Leuven ICTS for my storage solution

The data are stored on servers from the university with a daily automatic backup.

Is there currently sufficient storage & backup capacity during the project?

If no or insufficient storage or backup capacities are available, explain how this will be taken care of.

- Yes

How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

All ICT solutions at KU Leuven are subject to the university-wide ICT information security standards. The faculty's ICT service organizes the raw network storage it procures from central ICT services in such a way that access permissions are limited, fixed, delegated to and audited by data managers who do not need to have an IT background. All drives are managed by KU Leuven personnel, bound by the KU Leuven general and ICT codes of conduct.

All digital data will be securely stored on the KU Leuven OneDrive account of the post-doctoral researcher, Suzanne Splinter. The informed consent forms will be kept in a locked cabinet under her supervision.

For this project, it was not possible to work completely anonymously, as our observations were supported by video recordings to enable later transcription. During transcription, as well as in subsequent stages of the research process, participants' personal data were processed pseudonymously. This meant that the lead researchers assigned a unique code to each participant's name, such as "Teacher1" or "Child1." Similarly, the name of each school was replaced with an abstract code. Upon completion of the research, the video material was deleted. During the study, this video material was securely stored on KU Leuven's OneDrive. In this way, the collected data were processed confidentially at every stage of the research process.

Additionally, the names and email addresses of teachers were only collected for purposes related to communication about the research, i.e., for scheduling practical arrangements and sharing the research results. These names and contact details were not used in the research itself and were also deleted after the study. Under no circumstances were they retained for other purposes.

What are the expected costs for data storage and backup during the research project? How will these costs be covered?

There are no expected costs (data will be stored on the OneDrive of the postdoctoral researcher Suzanne Splinter, and after the project is finished, published on RDR, deleted or stored on the OneDrive of Joke Torbeyns). OneDrive is free for staff and students of KU Leuven.

Data Preservation after the end of the Research Project

Which data will be retained for 10 years (or longer, in agreement with other retention policies that are applicable) after the end of the project?

In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).

- Certain data cannot be kept for 10 years (explain below)

The recordings will be deleted after the completion of the research. The pseudonymized transcripts and any other data will be securely stored in the protected networks of KU Leuven (i.e., RDR or the personal network of the supervisor of the project, Joke Torbeyns) for 10 years. After 10 years, all original data files will be permanently deleted.

Where will these data be archived (stored and curated for the long-term)?

- KU Leuven RDR

What are the expected costs for data preservation during the expected retention period? How will these costs be covered?

There are no expected costs (data will be stored on the OneDrive of the postdoctoral researcher Suzanne Splinter, and after the project is finished, published on RDR, deleted or stored on the OneDrive of Joke Torbeyns).

Data Sharing and Reuse

Will the data (or part of the data) be made available for reuse after/during the project?
Please explain per dataset or data type which data will be made available.

- Yes, as restricted data (upon approval, or institutional access only)
- Yes, as open data
- No (closed access)

The digital picture books, as previously explained, will not be made available. The coding schemes, however, will be shared as open data on RDR. The recordings will be deleted upon completion of the research. All other data (e.g., transcriptions and coded data in Excel or SPSS) will be restricted and only accessible upon approval of a request by one of the primary researchers (Suzanne Splinter or Joke Torbeyns). This measure ensures privacy, as the files (even after pseudonamization) contain indirect personal data that could potentially lead to identification of the participants when combined (e.g., birth date of the child, years of experience of the teachr, and SES level of the school).

If access is restricted, please specify who will be able to access the data and under what conditions.

Access to the data is restricted to ensure compliance with privacy regulations and to protect the confidentiality of the participants. Sharing of data will only be permitted upon request, subject to approval by one of the lead investigators (Suzanne Splinter or Joke Torbeyns). Requests can be submitted via email and must clearly state the purpose of the intended use.
The following procedures will be applied to evaluate and control access:

- - Each request will be reviewed to determine whether the intended use aligns with the principles of the study, including research purposes only.
  - Requests will also be evaluated to ensure that no data is shared or used inappropriately.
  - Personal data will not be included in the shared datasets to ensure compliance with GDPR and other privacy regulations.
  - Data will be provided in a secure format, and recipients will be instructed on how to handle and store the data securely.

Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

Please explain per dataset or data type where appropriate.

- Yes, privacy aspects

Personal data of teachers or children and videorecordings will never be shared (in line with GDPR regulations and the agreements made with SMEC).

Where will the data be made available?

If already known, please provide a repository per dataset or data type.

- KU Leuven RDR (Research Data Repository)

When will the data be made available?

- Upon publication of research results

Data will be made available after acceptance of publication.

Which data usage licenses are you going to provide?

If none, please explain why.

- CC-BY 4.0 (data)
- Data Transfer Agreement (restricted data)

Do you intend to add a persistent identifier (PID) to your dataset(s), e.g. a DOI or accession number? If already available, please provide it here.

- Yes, a PID will be added upon deposit in a data repository

What are the expected costs for data sharing? How will these costs be covered?

No costs are expected.

Responsibilities

Who will manage data documentation and metadata during the research project?

The PI (Suzanne Splinter) is responsible during the project supported by the other involved researchers.

Who will manage data storage and backup during the research project?

The PI (Suzanne Splinter) will update and implement this DMP supported by the other involved researchers. A (technical) staff member will support the PI in this task.

Who will manage data preservation and sharing?

The PI (Suzanne Splinter) will manage data preservation and sharing during the time of the PhD-research. After the research project
end, data preservation and sharing will be the responsibility of the supervisor (Joke Torbeyns for KU Leuven).

Who will update and implement this DMP?

The PI (Suzanne Splinter) will update and implement this DMP supported by the other involved researchers. A (technical) staff member will support the PI in this task.