Plan Overview

A Data Management Plan created using DMPonline.be

Title: Naar een beter begrip van de ontwikkeling van metacognitieve regulatie in schoolse vaardigheden: de rol van metacognitieve monitoring

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Template: KU Leuven BOF-IOF

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Project abstract:

Metacognitieve monitoring stelt mensen in staat op te merken wanneer ze fouten maken, en is daarmee een belangrijke component van leren bij zowel kinderen als volwassenen. Eerder onderzoek toonde aan dat metacognitieve monitoring zich bij kinderen ontwikkelt van een domein-specifieke tot een domein-algemene vaardigheid en dat deze verandering zich voordoet tijdens de lagere school. Het is echter nog niet duidelijk wanneer deze overgang specifiek plaatsvindt en welke mechanismen hier onderliggend aan zijn. Dit onderzoeksproject richt zich daarom op de ontwikkeling van metacognitieve monitoring en heeft als doel deze overgang te bestuderen in kinderen van verschillende (lagere school)leeftijden en te achterhalen in welke mate deze ontwikkelingen gestuurd worden door educatieve en/of maturationele processen. Kinderen van het tweede tot het vijfde leerjaar zullen longitudinaal onderzocht worden via (academische) gedragstaken. Praktisch informeert dit onderzoek ons over het soort interventies (specifiek vs. algemene) en de timing ervan om metacognitieve vaardigheden op school te stimuleren.

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Naar een beter begrip van de ontwikkeling van metacognitieve regulatie in schoolse vaardigheden: de rol van metacognitieve monitoring

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	
WP1: behavioral data	Computer tasks assessing arithmetic and spelling performance and metacognitive monitoring	E	D	N, T	.xlsx, .csv	< 100GB	None
WP2: questionnaire data	Physical questionnaires to collect demographic data, filled out by parents of participating children	N	D, P	T	.pdf	< 100GB	appr. 250 questionnaires (750 pages)
WP2: behavioral data	Computer tasks assessing arithmetic and spelling performance and metacognitive monitoring, pen-and-paper tasks assessing general spelling and arithmetic knowledge and intellectual ability	N	D, P	N, T	.xlsx, .csv	< 100GB	appr. 250 sets of pen-and-paper tasks (750 pages)
WP3: questionnaire data	Physical questionnaires to collect demographic data, filled out by parents of participating children	N	D, P	T	.pdf	< 100GB	appr. 250 questionnaires (750 pages)
WP3: behavioral data	Computer tasks assessing arithmetic and spelling performance and metacognitive monitoring, pen-and-paper tasks assessing general spelling and arithmetic knowledge and intellectual ability	N	D, P	N, T	.xlsx, .csv	< 100GB	appr. 250 sets of pen-and-paper tasks (750 pages)

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:

Dataset received upon direct request from Elien Bellon, used in Bellon et al. (2020). DOI: https://doi.org/10.1371/journal.pone.0229932

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)

This study has been approved by the Social and Societal Ethics Committee KU Leuven (SMEC; G-2024-8552).
We will collect data on children's metacognitive monitoring and their arithmetic and spelling performance. In addition to these

tasks, we will collect information about relevant non-cognitive factors (demographic & background information (e.g., socioeconomic status). We will pseudonymize the collected data and will follow KU Leuven's GDPR code of using and processing personal data.

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)

This study has been approved by the Social and Societal Ethics Committee KU Leuven (SMEC; G-2024-8552).

Personal data of the participants are name and date-of-birth. These are collected for ID purposes during data collection. It also includes contact information (e.g., email address, name of the school…) and signed informed consents. This information is only available to researchers involved in recruitment and data collection. The file linking the code and personal identifiers age/dob is only accessible to these researchers. It is stored in a personal OneDrive folder of Bert De Smedt. For the remainder of the study, all derivative data will be coded, and thus pseudonymized, and stored in a different shared OneDrive folder. We will follow KU Leuven's GDPR code of using and processing personal data.

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.

- No

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).

For each work package, we will make a codebook documenting the study design, sampling, measures and variables that allows a secondary data analyst to use the data accurately and effectively. All tests materials will be made available on the open science framework (OSF) account of the KU Leuven PI Bert De Smedt h(ttps://osf.io/cmvdh/). This documentation includes per measure, how it was constructed and how performance indices were calculated. We will pre-register our data-analysis plan on OSF for each work package. It will be made available after publication, along with the respective dataset.

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.

- No

Data Storage & Back-up during the Research Project

Where will the data be stored?

- OneDrive (KU Leuven)

How will the data be backed up?

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

The data will be stored on the KU Leuven OneDrive. This data storage location has daily automatic back-up procedures.

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?

Digital data will be stored in a shared OneDrive folder, which can only be accessed by the involved KU Leuven researchers. The data will be pseudonymized by removing personal data and by storing this data separately from the research data on the personal OneDrive of Bert De Smedt and Suzanne Rotsaert, the PhD student. Multi-factor authentication is activated for the KU Leuven login of all researchers having access to the data.

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

We expect no costs for data storage and backup on the OneDrive for business during the research project.

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...).

- All data will be preserved for 10 years according to KU Leuven RDM policy

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

- Other (specify below)

Offline copies (questionnaires) and informed consents will be separately archived in a locked room for the expected 10 year period after the end of the project. They will be destroyed after the 10 year period. Digital data will be stored in OneDrive folders of Bert De Smedt for at least 10 years. After publication of a study, the pseudonymized dataset that was analyzed in that study will be made available on the OSF account of Bert De Smedt (https://osf.io/cmvdh/).

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

We expect no costs for data preservation during the expected retention period.

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 open data
- Yes, as restricted data (upon approval, or institutional access only)

The pseudonymized dataset of each study will be uploaded on the OSF account of the KU Leuven PI (Bert De Smedt) in a csv format (https://osf.io/cmvdh/) upon publication of a study.

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

The pseudonymized dataset of a study will be shared in a csv format on the OSF platform. It will be available to anyone provided that they give appropriate credit.

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.

- No

Where will the data be made available?

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

- Other data repository (specify below)

The pseudonymized dataset per study will be uploaded in a csv format at the OSF on the account of the KU Leuven PI Bert De Smedt (https://osf.io/cmvdh/).

When will the data be made available?

- Upon publication of research results

Which data usage licenses are you going to provide?

If none, please explain why.

- CC-BY 4.0 (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?

There are no costs expected.

Responsibilities

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

The data documentation and metadata during the research project will be managed by Bert De Smedt (PI) supported by Suzanne Rotsaert, the appointed PhD student.

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

The data storage and backup during the research project will be managed by Bert De Smedt (PI) supported by Suzanne Rotsaert, the appointed PhD student.

Who will manage data preservation and sharing?

The data preservation and sharing will be managed by Bert De Smedt (PI) supported by Suzanne Rotsaert, the appointed PhD student.

Who will update and implement this DMP?

This DMP will be updated and implemented by Bert De Smedt (PI) supported by Suzanne Rotsaert, the appointed PhD student.