The task-(in)dependency and predictors of children’s strategy adaptivity in arithmetic.

A Data Management Plan created using DMPonline.be

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Template: KU Leuven BOF-IOF

Grant number / URL: PDMT2/23/015

ID: 203307

Start date: 01-10-2023

End date: 30-09-2024

Project abstract:

Strategy adaptivity, or the ability to select the most efficient strategy on each item, is a key competence for math performance and math development during childhood. Previous findings in arithmetic showed that strategy adaptivity varies with task characteristics and across individuals. However, unknown is whether strategy adaptivity is specific for each task, or whether it is a general, task-independent skill. The task-specificity or -generality of children’s strategy adaptivity is important for theoretical models of math performance, math development, and children’s strategic behaviors in mathematics and other cognitive domains. This is also an important issue for math education. To address this issue, I will examine individual differences and longitudinal changes in strategy adaptivity using a longitudinal cross-lagged panel design. I will test the predictive value of prior strategy adaptivity, task-specific knowledge, and executive functions on present and later strategy adaptivity while 9—13 y.o. children accomplish different arithmetic problem-solving tasks.

Last modified: 05-12-2023

The task-(in)dependency and predictors of children’s strategy adaptivity in arithmetic.

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	
Measures	Dataset with measures from tasks	N	D	T&N	Excel	<1GB	
Raw data	Datasets with raw data	N	D	T&N	Excel	<1GB	
Template	Template for processing raw data	N	D	T&N	Excel	<1GB	
Script data collection	Script with instructions about data collection protocol	N	D	T	Word	<1GB	
Consent	Completed informed consent forms	N	P	T	Word	<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:

No existing data will be used.

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)

Some personal data will be collected and processed.
We obtained privacy/ethical approval from PRET: *G-2023-7138*

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 will collect data about children's LVS-score mathematics, date of birth, gender, and school/class. We will only collect data from children after gaining informed consent from their parents, and all data will be pseudonymised (i.e., children's names will be replaced by subject numbers).
We obtained privacy/ethical approval from PRET: *G-2023-7138*

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).

Protocols for all studies will be developed and saved centrally in a OneDrive cloud environment shared with the researchers involved in the studies.
These protocols will describe accompanying information necessary to keep the data understandable and usable for the researchers involved in the studies now and in the future.

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

I plan to deposit and share research data via KU Leuven Research Data Repository, and thus will use DataCite as a metadata standard.

Data Storage & Back-up during the Research Project

Where will the data be stored?

- Shared network drive (J-drive)
- OneDrive (KU Leuven)

How will the data be backed up?

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

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?

I received a laptop through the Faculty's ICT service. This laptop has Bitlocker pre-installed, which means sensitive data are protected by the Bitlocker system. My KU Leuven OneDrive account is also protected through the Faculty's ICT service.
The physical data will be kept in a locked cabinet in my office.

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

No additional costs.

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)?

- KU Leuven RDR
- Shared network drive (J-drive)

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

There will be no costs related to data storage

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.

- Other (specify below)

The data sharing will depend on the type of data:

- Personal data will never be shared
- Datasets that do not contain personal information will be made publicly available at the time of or after scientific publication (made available through a repository/or made available upon request).

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

The data access will depend on the type of data:

- Personal data can only be accessed by involved researchers
- Datasets that do not contain personal information will be made publicly available at the time of or after scientific publication (made available through a repository/or made available upon request).

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, ethical aspects
- Yes, privacy aspects

Personal data will never be shared due to privacy and ethical aspects.

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

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

All data shared in the RDR repository will receive a DOI.

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

The use of RDR is free of charge.

Responsibilities

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

Stijn Van Der Auwera

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

Stijn Van Der Auwera

Who will manage data preservation and sharing?

Stijn Van Der Auwera

Who will update and implement this DMP?

Stijn Van Der Auwera