Learning to love cognitive challenge: understanding and fostering the development of Need for Cognition in youth

A Data Management Plan created using DMPonline.be

Creators: Jeroen Lavrijsen, n.n. n.n.

Affiliation: KU Leuven (KUL)

Funder: Fonds voor Wetenschappelijk Onderzoek - Research Foundation Flanders (FWO)

Template: FWO DMP (Flemish Standard DMP)

Principal Investigator: n.n. n.n.

Data Manager: Jeroen Lavrijsen

Project Administrator: Jeroen Lavrijsen

Grant number / URL: G048223N

ID: 200156

Start date: 01-01-2023

End date: 30-06-2026

Project abstract:

Need for Cognition (NFC), or the tendency to seek, engage in, and enjoy effortful cognitive activity, has been established as a critical determinant of academic achievement and can be regarded as a key educational outcome supporting life-long learning. However, little is yet known about the development of NFC in youth and how it can be nurtured by the social learning environment. This project will fill these gaps using two longitudinal studies and an intervention study that address 4 research goals: First, using a long-term longitudinal study throughout adolescence, we will investigate the degree to which NFC is subject to change and how developmental trajectories differ between students. Second, using the same data we will examine whether flow experiences at school, in which students experience that engagement in cognitive activities is rewarding, provide the ‘motivational roots’ of NFC. Third, a 2-year 6-wave longitudinal study will be set up to examine how children's experiences with cognitive activities at home and in school (i.e., yielding enjoyment, challenge, and feelings of self-efficacy) promote the development of NFC. Fourth, a teacher training aimed at fostering NFC in students by appraising and demonstrating how to positively approach cognitive challenge will be developed and effects on NFC will be tested.

Together these studies will provide critical insights in the antecedents of NFC and how to support students in learning to love cognitive challenge.

Last modified: 09-06-2023

Learning to love cognitive challenge: understanding and fostering the development of Need for Cognition in youth
FWO DMP (Flemish Standard DMP)

1. 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.

				Only for digital data	Only for digital data	Only for digital data	Only for physical data
Dataset Name	Description	New or reused	Digital or Physical	Digital Data Type	Digital Data format	Digital data volume (MB/GB/TB)	Physical volume
		Please choose from the following options: • Generate new data • Reuse existing data	*Please choose from the following options:* • Digital • Physical	*Please choose from the following options:* • Observational • Experimental • Compiled/aggregated data • Simulation data • Software • Other • NA	*Please choose from the following options:* • .por, .xml, .tab, .cvs,.pdf, .txt, .rtf, .dwg, .gml, ... • NA	*Please choose from the following options:* • <100MB • <1GB • <100GB • <1TB • <5TB • <10TB • <50TB • >50TB • NA	
TH!NK-study - student diaries	Daily diary assessment in which primary school students students will reflect on the cognitive activities they participated in during that day. In addition, a pretest student survey and a pretest parent survey will be collected	New data	Digital	Observational	.cvs or .sas7bdat	<1 GB	
TH!NK-studie intervention	Teachers will participate in an intervention; timing and fidelity of implementation will be evaluated and related to student diaries	New data	Digital	Observational	.cvs or .sas7bdat	<100 MB	
Talent-study	Additional wave of a longitudinal student survey in secondary education	New data (extending existing longitudinal data)	Digital	Observational	.cvs or .sas7bdat	<1 GB	

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:

Earlier waves of Talent-data have been collected within the same research unit; within this project, a new wave is collected

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? Describe these issues in the comment section. Please refer to specific datasets or data types when appropriate.

- Yes, human subject data

For the TH!NK-study, ethical approval will be obtained before the start of the study (reference G-2023-6770)
For the TALENT-study, ethical approval has been granted (reference G-2023-6395)

Will you process personal data? If so, briefly describe the kind of personal data you will use in the comment section. Please refer to specific datasets or data types when appropriate.

- Yes

Name, e-mail address, cell phone number

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/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

2. 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 the TH!NK-dataset, a new codebook will be created documenting for each variable the background, scale and interpretation.
For the TALENT-dataset, the existing codebook will be updated accordingly.
All codebooks and documentation are shared within a dedicated TEAMS-channel.

Will a metadata standard be used to make it easier to find and reuse the data? If so, please specify (where appropriate per dataset or data type) which metadata standard will be used. If not, please specify (where appropriate per dataset or data type) which metadata will be created to make the data easier to find and reuse.

- No

3. Data storage & back-up during the research project

Where will the data be stored?

The data will be stored in the cloud (One Drive for Business) and on the personal PC of the project PI (Karine Verschueren, KU Leuven) and of the main researcher involved in the project (Jeroen Lavrijsen, KU Leuven)

How will the data be backed up?

Regular back-up through faculty policy (i.e., OneDrive).

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely.
If no or insufficient storage or backup capacities are available, then 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?

To protect data that is locally stored, hard disks are encrypted with centrally managed
Bitlocker technology. After the research, data are archived at a restricted area of the K: archive drive; in line with faculty policy, access to the data will be limited, fixed, delegated to and audited by data managers.
Following the GDPR, all personal data processing activities will be recorded. Personally identifiable information field within the data records will be replaced by codes (pseudonymization). Technical and organisational controls are in place to protect files that contain mappings between pseudonyms (codes) and the original personally identifiable information. Specifically, the file that contains the mapping between the codes (pseudonyms) and the original personally identifiable information is stored on a separated CODES share of our research unit, with access controlled by the data manager of the unit. Researchers in the project have access to the pseudonymized data only

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

The necessary funding for storage and backup has been foreseen within the research unit.

4. Data preservation after the end of the research project

Which data will be retained for at least five 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...).

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)?

The main promotor (Karine Verschueren) is responsible for data preservation. Data will be stored in accordance with Regulation 2016/679 (GDPR). All data will be stored at university's central network drives.

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

The necessary small amount of funding for storage and backup has been foreseen within the research unit.

5. Data sharing and reuse

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

- Yes, in a restricted access repository (after approval, institutional access only, ...)

In line with open science guidelines, parts of the pseudonymized dataset will be included in the Open Science Framework and shared with other researchers upon request.

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

In line with open science guidelines, parts of the pseudonymized dataset (without any personal, identifiable or contact information) will be included in the Open Science Framework and shared with other researcher upon request.
The criteria for sharing are:
- only data which have bene published (i.e., on which an accepted publication has been based) will be shared
- data will only be shared with academic researchers

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 in the comment section 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.

Open Science Framework.

When will the data be made available?

After publication of research results.

Which data usage licenses are you going to provide? If none, please explain why.

Data sharing will be provided within the Open Science Framework (i.e., upon request to researchers)

Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, you have the option to provide it in the comment section.

- No

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

No expected costs

6. Responsibilities

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

Jeroen Lavrijsen

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

Jeroen Lavrijsen

Who will manage data preservation and sharing?

Karine Verschueren

Who will update and implement this DMP?

Karine Verschueren and Jeroen Lavrijsen