Plan Overview

A Data Management Plan created using DMPonline.be

Title: In the eye of the beholder? Mapping and understanding appearance, appreciation and their interrelations in multidimensional stimulus spaces

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Template: FWO DMP (Flemish Standard DMP)

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Project abstract:

Aesthetic appreciation is inherently multidimensional: many different stimulus dimensions and multiple levels of perceptual processing shape our appreciation for a stimulus. Previous research either lost parametric control by using naturalistic stimuli, or used parametrically controlled but unidimensional stimuli. Furthermore, perceptual influences on appreciation were often ignored. In addition, many studies focused either on the individual or the population level of aesthetic experience, leaving the relative importance of each unclear.

The project addresses each of these limitations. At the population level, I will enable the characterization of perceptual and aesthetic evaluations for fine-grained, high-dimensional

parametric stimulus spaces by combining two recent developments: the OCTA toolbox for stimulus creation and Gibbs Sampling with People for efficiently sampling the high-dimensional space. At the individual level, I will contribute to a process-level explanation of aesthetic appreciation by extensively characterizing a group of individuals in terms of their perceptual and aesthetic processing abilities and experience. To integrate the results at the individual and the population level, I will estimate the relative contribution of individual differences to aesthetic appreciation for the parametric stimulus space of interest.

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Application DMP

Questionnaire

Describe the datatypes (surveys, sequences, manuscripts, objects …) the research will collect and/or generate and /or (re)use. (use up to 700 characters)

In the course of this project, digital data will be collected from human participants via computerized behavioral experiments and questionnaires. As most experiments will involve visual perception and appreciation, the data may be used in numeric, textual, or image format. Furthermore, the raw digital data will be processed and analysed, resulting in additional data from statistical model fits and visualizations. The project will also lead to the generation of new software developed for research purposes.

Specify in which way the following provisions are in place in order to preserve the data during and at least 5 years after the end of the research? Motivate your answer. (use up to 700 characters)

The raw data will be stored and preserved on protected KU Leuven network drives. KU Leuven ICTS and PPW ICTS will ensure the quality (safety, regular back-ups, archive) of the protection. For projects in collaboration with external partners, the data may be shared with and stored on networks outside of KU Leuven, but also there the necessary protection and safety will be taken into account. A pseudonymized version of the data will be stored publicly, e.g., on the Open Science Framework (osf.io). I will make sure participants are aware of this and can give their consent, in the informed consent form.
Prof. Johan Wagemans will be responsible as he is a permanent staff member at KU Leuven.

What's the reason why you wish to deviate from the principle of preservation of data and of the minimum preservation term of 5 years? (max. 700 characters)

I do not wish to deviate from this principle.

Are there issues concerning research data indicated in the ethics questionnaire of this application form? Which specific security measures do those data require? (use up to 700 characters)

I will collect personal data from human participants. To be able to connect data from the same participants across sessions, I will make use of a personal identifier. Before sharing the data, these identifiers will be replaced by another unique number, and I will keep a separate file private and secured with the key to link identifiers to the data files.

Which other issues related to the data management are relevant to mention? (use up to 700 characters)

Not applicable.

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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**
For studies in all work packages (GSP studies, MLCM studies, individual differences studies)							
Experiment code	Written in Python or Javascript (using Python, jsPsych with a Javascript backend, or PsyNet with a Python backend).	New	Digital	Software	.py, .js, .html, .css	<1GB	
Behavioral and questionnaire data	Collected via an offline or online program (using Python, jsPsych with a Javascript backend, or PsyNet with a Python backend). These programs output .json, .csv, or .txt files that will be processed into e.g., .json, .txt, .csv, and/or .svg files.	New	Digital	Observational, Experimental, Compiled/aggregated data	.txt, .csv, .json, .svg, .png, .jpg	<100GB	
Code from analysis and reporting	Written in R, R Markdown, and quarto	New	Digital	Software	.r, .rmd, .qmd, .pdf, .svg, .png, .jpg	<1GB	
Project and workflow documentation	Documents may be created to document specific aspects of the research process (e.g., preregistrations, ethical applications, informed consents, codebooks).	New	Digital	Other	.docx, .xlsx, .csv, .odt, .pdf, .rmd, .qmd	<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 reuse of existing data is planned.

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

The ethical application will be submitted after finalizing the research design for the studies involved in the project.

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

The following personal data will be collected: contact information of participant, participant identifier based on Prolific/mTurk/EMS SonaSystems ID, gender, age, nationality, mother tongue, questions on level of education, art expertise, sensory sensitivity, personality, and personal aesthetic preferences.
We will collect personal data from human participants. To be able to connect data from the same participants across sessions, we will make use of a personal identifier. Before sharing the data, these identifiers will be replaced by another unique number, and we will keep a separate file private and secured with the key to link identifiers to the data files.
The raw data will be stored and preserved on protected KU Leuven network drives. KU Leuven ICTS and PPW ICTS will ensure the quality (safety, regular back-ups, archive) of the protection. For projects in collaboration with external partners, the data may be shared with and stored on networks outside of KU Leuven, but also there the necessary protection and safety will be taken into account.
A pseudonymized version of the data will be stored publicly, e.g., on the Open Science Framework (osf.io). We will make sure participants are aware of this and can give their consent to collect and share the pseudonymized data with other researchers in the informed consent form.

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.

- Yes

Part of the research project will be developed in collaboration with the Max Planck Institute for Empirical Aesthetics in Frankfurt (Germany). As KU Leuven will be the leading institution in this specific research project (and the researcher will be paid by KU Leuven during the development of the project), IPR will be owned by the research group at KU Leuven.

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).

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, DOIs of shared datasets, creative common license, link to preregistration, approval/registration code of ethical committee, links to publications.
* In case a study within the project is preregistered, the preregistration will be published on the Open Science Framework. The link to the preregistration will be provided in the project documentation.
* The ethical application will be saved as a PDF document and the approval/approval code will be added to the project documentation. In addition, an empty informed consent form will be provided.
* Experimental program
* For each dataset resulting from a behavioral experiment, a codebook will be created.
* The data preparation and statistical analyses will be documented in an annotated analysis code file (e.g., R code file). The version of the used software and packages will be documented.
* A (link to a) manuscript and supplementary document will be added to the project documentation, in which the method of the study is described.
Version numbering, Git and/or OSF will be used for version control, depending on the stage of the project.

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.

- Yes

Project metadata will be created when registering the project on OSF.

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

Where will the data be stored?

Raw data, possibly including personal information, will be stored in my personal folder on the KU Leuven network [I: (active) or K:\# PERSONAL (archived)].
A pseudonymized version of the raw data will be stored in my personal KU Leuven OneDrive account. In a later stage, this pseudonymized version of the raw data will be shared publicly, for example via the Open Science Framework (osf.io). After the end of the project, all raw data will be submitted to the supervisor (Prof. Johan Wagemans), in the format of a .zip-file. This will be part of submitting all relevant material on the conducted studies during the project, to ensure preservation of the raw data at least 5 years after the end of the research. By sharing the data publicly on a sustained platform like Open Science Framework, (a) preservation of the pseudonymized data for at least 5 years after the end of the research and (b) the possibility for other researchers to access the collected data are guaranteed.
Participants will be made aware of the fact that an pseudonymized version of the data may be made publicly accessible, for example via the Open Science Framework (osf.io), as well as of the fact that the pseudonymized data can be used for re-analysis and additional analyses by the same or other researchers.

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

- Yes

As the size of all data files do not exceed the available individual storage space of 2 TB (OneDrive) and the available shared

storage space of 100 GB, there is sufficient storage and backup capacity during the project.

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

Multi-factor authentication is activated for the KU Leuven login of all researchers having access to the data.
Digital data will be stored on OneDrive and/or a KU Leuven network drive, which can only be accessed by the (postdoctoral) researcher(s) working on the project.
The raw non-pseudonymized data will be stored on a shielded KU Leuven network drive, which can only be accessed by the main researcher involved in the project. Only if these raw data need to stay available after the contract of the involved main researcher has ended, access will be transferred to the principal investigator or appointed data manager.

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

There are no costs expected as the size of the data files does not exceed the available storage space.

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...).

Participants' contact information, payment information, raw (non-pseudonymized) data files containing highly confidential data, will be deleted when they are not relevant anymore for the research project (i.e., after the overarching project has ended).
All other data will be preserved for 10 years according to KU Leuven RDM policy, and actually longer as a pseudonymized version of the data will be stored on the Open Science Framework.

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

The data will be archived on the Open Science Framework (osf.io).

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

The expected costs for data preservation are minimal/negligible. These will be covered by the lab (Research Unit Brain & Cognition).

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 an Open Access repository

Pseudonymized data will be made available in an Open Access repository.

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

Pseudonymized data will be made available in an Open Access repository.

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

There are no restrictions to share the pseudonymized data as the data do not contain highly sensitive information and participants gave their informed consent to share these data with other researchers.

Where will the data be made available? If already known, please provide a repository per dataset or data type.

The pseudonymized data will be made available on the Open Science Framework (osf.io).

When will the data be made available?

The data will be made available upon publication of the research results.

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

The software or code license will depend on the license that is possible/common/preferrable for that programming language and type of code (e.g., analysis code vs. experiment code vs. newly developed software package). For the data, a CC-BY license will be used.

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.

- Yes

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.

6. Responsibilities

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

The main researcher involved will be responsible for managing data documentation and metadata during the project. The PI will be responsible for checking and making sure that the involved researchers fulfill their responsibility.

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

The main researcher will manage data storage and backup during the project supported by the other involved researchers.

Who will manage data preservation and sharing?

The main researcher will manage data preservation and sharing supported by the other involved researchers.

Who will update and implement this DMP?

The main researcher will update and implement this DMP supported by the other involved researchers.