Preventing sleepless nights: giving feedback as supervisor

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PROJECTS

Getting to the core of crimmigration

A PhD trajectory is a phase of training in academic work and personal growth. While learning from experience can be invaluable, few supervisors would like doctoral candidates to learn the hard way, by losing all their data or documentation, for example. A data management plan (DMP) should help researchers to ensure that the datasets meet disciplinary standards and to reduce unnecessary risks in a project. It gives supervisors and other parties involved insights into the care for and organization and protection of the datasets. Now when new researchers draft such a plan they will ask their supervisors for advice. What to look for when giving feedback?

The example of the fictional character Alfred Issendorf, the protagonist of the novel "Beyond Sleep" [1], shows how much could go wrong when young researchers set out to collect data ambitiously, enthusiastically, but unprepared. There are numerous ways in which doctoral candidates are encouraged to think ahead and plan for their PhD trajectory. From drawing up of training and supervision plans to courses in project management.

A relatively recent addition is the writing of data management plans (DMPs) before the start of the data collection and the updating of the document throughout the research project. There might be guides, trainings or individual advice available at your university on how to write a plan or fill in a specific template. How would you read a plan as a senior researcher and supervisor that is about someone else's – quite independent – project and what to look for?

This blog posts offers various approaches to reading a DMP as a supervisor and points out in which areas integrating data management planning as a

standard topic in the supervision meetings could contribute to the research project and personal development in general. Should the candidate write a DMP for a specific funder, seeking advice from designated support staff with knowledge of the specific criteria, e.g. at the university library or research support unit, is highly recommended.

Completeness and consistency

Knowing the field of research and the range of methods that could be used in answering the central research question better than anyone else, a supervisor can – maybe better than any data management advisor – point out (potential) gaps in a draft DMP.

A PhD candidate could perceive it as quite challenging having to write a DMP for a method of which certain aspects are new to him or her. Some parts of the research process could therefore be left out unintentionally, such as aspects with regard to details in data processing or analysis, especially when the research process asks for rich rigor. Differences in understanding of what using a certain scientific method entails in practice or misunderstandings during a supervision meeting will likely become visible and could be addressed when giving feedback to the DMP. Data management supervision could be a good moment to discuss the expected documentation and transparency of the research process.

In the case that triangulation is part of the research design; the supervisor would be able to see in the plan if all the methods and sources of data are being considered. Then it is equally important to see whether these are also being mentioned consistently throughout the whole document. Some DMP templates might include more than one aspect in a question or field to fill in, for instance, about the required hardware *and* software. Here the supervisor could see if questions have been answered completely. This is important in order to be able to draw the right conclusions with regard to data protection, research costs and planning of the activities [2].

Before filling in a DMP template, existing plans might have been read and used for inspiration. Sharing and discussing DMPs among researchers can indeed be very valuable for learning, and development and copying is okay when it comes to DMPs. This can save a great amount of time, but the required bit of tailoring – "be unique where needed" [3] might be missed on occasion by a PhD candidate. So also beware of content that should not be in the plan or needs to be changed, because it does not apply to this specific project.

When asking about potential gaps in a DMP, sometimes supervisors might get the reaction "but I don't know this yet, because". For some aspects in a DMP not knowing is perfectly fine, the gaps can be made explicit in the plan and another review of the plan scheduled for a later moment. In other cases, it is time to see what is needed to fill the gap and where the PhD candidates needs advice from the supervisor or data management support from the university. If some aspects are not yet clear, talking through the research data lifecycle in very small and concrete steps ("and what will you do then with these files?") might help to reveal issues that need to be addressed.

Understandability

When a DMP is being used for the day-to-day data management of a complex project, it might be difficult to fit in all the details into a DMP template. For externally funded projects Briney advises to create a "master data management plan" with more details relevant for the research as "[t]he value of data management planning to you and your co-workers should not be dictated by your funding application alone" (Briney, 2015, p.23).

While a DMP is a tool for researchers to plan and manage their projects, it might also be used to prepare for the care for the data after the end of the project. Therefore, it might be read by other people in various roles and professions and might be consulted even 10 or more years after the end of the project. A DMP that is easily understandable for people outside of the key research group is therefore of great value.

Awareness, knowledge and skills

The DMP is also a useful tool for the supervisor as it helps to identify if and in which field training and guidance will be required during a PhD trajectory – aside from all the method or discipline specific training. The individual needs could be in the field of general information literacy, knowledge about research data management [4] or how to use certain software or hardware. Talking about the different tools for data collection, processing and analysis as well as the protection measures mentioned in the DMP, could contribute to a better estimation of the level of digital skills and general information security awareness and provide valuable input for a training plan for the PhD candidate. He or she might underestimate the time needed for learning in these fields. In some cases, some practice and a review of a manual or tutorial, a few publications or the help of a colleague will suffice to develop knowledge, skill and confidence. In others, a formal training course or contact with specialized university staff might be required. Revisiting the DMP during supervision at the crucial moments in the research process, could reveal if a new phase in the research process leads to new data management questions: for example about data de-identification and documentation during the data processing phase.

Risks

Although researchers do not usually tend to think along these lines, there are many risks, for instance in the field of information security, when it comes to doing research. “What if-scenarios” might not be the nicest topic of conversation, but including risk management seriously in the planning might prevent sleepless nights or crisis management later on in the project. DMP templates are not all very detailed about procedures in practice, so talking about the background and ideas behind the information provided in the DMP might be a good option. Depending on the content in the DMP and the availability of institutional policies and procedures, supervisors could ask very concrete questions such as: “What is the longest period during the data collection phase that your dataset is without a back-up?”, “Do you intend to work from home on your research data and how would you do that?” or “Where will you store these paper documents?”. Depending on the data collection scenarios and the dependence on external factors, this topic might require revisiting throughout the PhD trajectory. Reducing risks might also involve reviewing the data and documentation on occasion during supervision and verify that the measures mentioned in the DMP are being implemented in practice.

Compliance

In many cases, research projects need to be compliant with a number of institutional, national or international policies, codes of conduct, laws and regulations that have implications for data management. The spectrum contains topics such as protection of personal data, information security, intellectual property, open science and scientific integrity. Should the project receive external funding, further rules might apply. It is beyond the scope of this blog post to go into this topic in detail. In addition, the DMP could serve here as indicator of the PhD candidate’s awareness of current policies and codes applying to the work of researchers. While intricate technical or juridical questions can be left to specialized university staff, learning about the respective code of conduct for research integrity and working in compliance with privacy legislation is essential to the training of researchers, for example.

The more complex an international or collaborative research scenario is, the more likely the researchers would be in need of expert advice to plan for data management.

Many research funders and journals have an open science policy with requirements about data archiving and sharing, which leads to another approach to approach the DMP of a PhD candidate. Look at the criteria of the funder and/or selected data archive and see if the plan includes all requirements: file formats, meta data, documentation, consent procedures etc.

Costs

As DMPs usually include a paragraph about research costs, they can help to indicate any gaps in the budget in an early stage of a project when there might still be room to adjust the budget or to find additional resources. Does the DMP actually mention all the relevant costs? Costing tools [5] give an overview of the different categories to take into consideration.

Concluding remarks

A DMP can be a valuable tool in supervision during a PhD trajectory if used to approach the research project from a different angle. As a tool, it is not set in stone and can be changed according to new insights or changes in the context in with the research project takes place. Using the DMP actively in supervision could support the development of transferable skills and by this to 'spill-over' effects to the other tasks of the PhD candidate. Topics such as organization of shared documents, access management, software selection or dealing with personal data can be equally important for project administration, teaching or (collaborative) organization of events.

Blog series

This blog post is part of the series "Research in fiction through the lens of data management".

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Footnotes

[1] For international readers this blog post refers to an English translation of Nooit meer slapen: Hermans, W.F. (2007). Beyond Sleep. (I. Rilke, Trans.). New York, NY: The Overlook Press. (Original work published 1966, translation of the 27th impression published in 2003 by De Bezige Bij).

[2] Assuming, for example, that next to using another method, digital photographs will be taken, these would need to come back at several places in the plan: the required hardware for taking photographs, the file format of the photographs, size of the dataset (required storage space), software needed to process digital images (if applicable), temporary storage locations (e.g. camera internal memory, SD card), risks to the data security, privacy aspects (if applicable), naming conventions for digital photographs, metadata about the photographs etc.

[3] LCRDM, 10 Tips for Writing a Data Management Plan (last accessed on 16 July-2019)

[4] A good general online resource to get started with knowledge about data management is the CESSDA Data Management Expert Guide.

[5] There are various costing tools. Here as example a guide by the Dutch National Coordination Point Research Data Management (last accessed 19 July 2019)