OPEN SCIENCE SKILLING AND TRAINING INITIATIVES IN EUROPE

FINLAND

Interview with Päivi Kanerva, University of Turku, Finland

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How did your Open Science skilling initiative begin?

The current challenge for researchers at the University of Turku is that there is a substantial gap between the level of targeted and present research data management (RDM) skills. In order to better understand this challenge and to develop a training course in RDM called *Basics of Research Data Management*, we examined the importance of RDM competencies versus perceived competencies of doctoral students in different stages of the research data life cycle. This was done by interviewing doctoral students, supervisors and biostatisticians.

Based on the results we developed a three-credit RDM course (*Basics of Research Data Management BRDM*) for doctoral students and post-doctoral researchers. The course was developed by a working group consisting of university teacher-researchers, lawyers, the library's Open Science specialists, data protection officers, IT Services, and biostatisticians.

At first (in 2019), three different study programmes of the BRDM were initiated: *Health Sciences Programme*, *Natural Sciences Programme* and *Survey Programme*. Each study programme had seven modules, of which three were the same across all programmes. During the course, students completed a study plan and built a data management plan for a research project. They also learned, for example, to take care of data privacy and to collect, store, protect, process, document and share data.

The second time (in year 2020) the course was changed a little. Currently, the course programmes. and their focus areas, are:

- *Health Sciences* (Finnish) - Clinical research
- *Survey* (Finnish) - Quantitative research
- *Interview* (English) - Qualitative research
- *Natural Sciences* (English) - Quantitative research

In this preliminary paper we discuss the conducted interviews and their key results, the RDM course planning and implementation, the student feedback and the lessons we have learned so far.

Please describe the context and aims of the initiative.

Learning outcomes (from the 2020 course)

By the end of the course, participants know how to produce an effective research plan, and understand the significance of planning data management before a research project starts. They are familiar with the data lifecycle, the various data types and formats as well as the requirements of data security, data protection and data sensitivity for the processing and reuse of data.

Participants are able to recognize the value of data not only for their own research project but also for themselves or other potential users after the research project and hence the importance of data organization, protection and documentation throughout the entire data lifecycle. Moreover, participants are able to identify what licences different research projects require and how to get them.

Participants have an understanding of the role of intellectual property rights in the reuse of data, know the practices and standards concerning data sharing and data citing and are able to identify main generic and discipline specific data repositories. Participants comprehend the principles of data ownership and the difference between whether the researcher or the university owns the data. They learn how to use the REDCap database or other software for collecting and organizing data, and have knowledge of other possible data management solutions.

The course is taught, for example, by academic experts, grant writer, lawyers, research IT specialists, data librarians and biostatistician.

Content

The course will introduce:

- Contents and structure of a high-quality research plan and especially how to write the data section;
- How to create an excellent data management plan (DMP) for the entire data lifecycle;
- Permissions, contracts, licences and intellectual property rights related to the research project and data management;
- REDCap and NVIVO data management softwares;
- Safe and dynamic (during research project) data storage, protection, processing and description as well as the related university services;
- Storage services and long-term preservation of data as well as the data documentation, sharing, retrieval and citation practices after the research project has ended.

Study methods

The course consists of four parallel study programmes, of which participants choose one. Each programme contains an introductory lecture, seven modules and a workshop. Some sessions are common to all programmes. The course is taught in the spring term. Working

methods include contact teaching, group work and course assignments. Participation in all sessions is mandatory.

What organisational framework did you use for this initiative?

Team members roles and responsibilities: The course is taught, for example, by academic experts, grant writer, lawyers, research IT specialists, data librarians and biostatisticians.

Resources used for skilling/training participants: DMPTuuli - tool for making a data management plan.

Choices and policies relating to this initiative: Data Policy of the University of Turku and Finnish and EU level Open Science principles and research literature.

How is the initiative managed and coordinated?

The course is managed and coordinated by university biostatisticians and Turku University Library.

Who are your target audiences?

Researchers, PhD and PostDoc researchers.

Which skills are prioritised?

TOP PRIORITY	STRONG PRIORITY	MODERATE PRIORITY
• FAIR Data • Open Science Skills	• Scholarly Publishing • Research Infrastructures and the EOSC • Research Integrity	• Metrics & Rewards • Citizen Science

Why did you prioritise some skills and exclude others?

We excluded data analysing and visualising skills because these are taught in multiple courses by other departments.

How do participants acquire and stay updated on these skills?

Working methods include contact teaching, group work and course pre- and post-assignments. Participation in all sessions is mandatory.

How do you recruit and train the trainers?

We have good contacts with other faculties and University research support staff.

Which channels, learning types and formats are used?

Face-to-face sessions, self-training activities, group learning, individual learning, MOOC, PDF documents and slides.

Which channels and formats have been most useful?

DMP-tool Tuuli, REDCap and NVivo (year 2020).

Is there formal recognition?

This is a formal training and participants receive a certificate of attendance upon completion.

What impact do you expect from this initiative?

We expect that research data management skills and competencies will grow. According to results (we have analysed the feedback which we have collected during the first course) it seems that we have succeeded in this. In order to see these results, please contact: paivi.kanerva@utu.fi

Have you seen any impact of your initiative so far?

In 2019, 55 doctoral candidates enrolled, 36 started, and 27 completed the course (the dropout rate was only 25 %). Besides doctoral candidates, also PostDoc researchers completed sessions in the course. We have collected both quantitative and qualitative data from the participants that are yet to be analysed. We conducted a survey concerning the RDM skills of participants before and after the course. We also gathered session based feedback. We have already developed the course quite a lot after the 2019 implementation. For example, students will prepare their own research plans and DMPs; the course will be held in two languages: English (Natural Sciences; Interviews tracks) and Finnish (Surveys; Health Sciences tracks); we collaborate with with Åbo Akademi, the Swedish speaking university of Turku. We will write a research paper on the planning, implementation, evaluating, and developing the course in due course.

What have you learnt so far?

The *Basics of Research Data Management* (BRDM) training is the first formal RDM skills training programme at the University of Turku. It contains many central issues from most common research data life cycle phases, with the exception of analysis and visualization, which were excluded. The BRDM is a common RDM basics study module for graduate students and post doc researchers in all faculties. This is the first step on a long road to a data fluent research community in our university.

Regarding the first implementation of the BRDM course in June 2019, we will continue analyzing the quantitative and qualitative results of the interviews. We will also thoroughly analyze the results of the pre- and post-surveys and the formal and informal feedback from the students as well as the experiences of the teachers. The BRDM working group will continue planning the second implementation, which will take place in Spring 2020.

Planning and realization will be made in co-operation with experts of Åbo Akademi, the Swedish speaking university in Turku.

Our long-term strategic objective is to build a RDM training path to support good quality data management in undergraduate, graduate and post doctorate phases in the University of Turku.

What about the budget and costs?

There wasn't any separate budget for the expenses, the work was and is done as normal part of the library's and other research support units' ordinary procedures.

Which challenges have you encountered?

In this BRDM course we had teachers who are not used to being teachers (for example lawyers and data protection ombudsman). They had to learn new skills, for example how to use the learning platform Moodle. The students found it hard to choose between study programmes (health sciences/survey/natural sciences) and they found it difficult to make a data management plan based on the research plan designed for the course. Some of the students wanted to do the DMP based on their own research project.

What would you tell others looking to do a similar program?

Collect feedback. We collected feedback after every study session and used it to make improvements for the second edition. We hope the second edition will be even better.

Elements useful to other libraries: RDM is a multi-unit and multi-professional business, and we have successfully integrated faculty researchers and teachers, legal affairs, biostatisticians, data protection officers, data librarians, research IT specialists, and repository spealists in the planning, implementation, and acting as teachers of the course. They all are part of the BRDM Working Group. We have created learning outcomes and plan for interactive learning for the whole curriculum and for each session separately.

More infomation of the interview study concerning the importance of RDM competencies, present RDM competencies, and planning the first 2019 implementation of the BRDM curriculum can be found here.

Which resources helped you to develop this initiative?

Carlson, J., Fosmire M., Miller C. & Nelson M. S. (2011). Determining Data Information Literacy

Carlson, J., Sapp Nelson, M. R., Bracke, M. S., Wright, S. J. 8 (2012, last update April 6 2015)

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Sapp Nelson, M.R. (2017). A Pilot Competency Matrix for Data Management Skills: A Step toward the Development of Systematic Data Information Literacy Programs

This case study has been produced by LIBER's Digital Skills for Library Staff & Researchers Working Group. For more case studies, and the original version of this one, please see: https://doi.org/10.5281/zenodo.3701370

2020