

Teaching Research Data Management Skills to Students

CODATA
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CITEC Open Science Manifesto (May 2013)

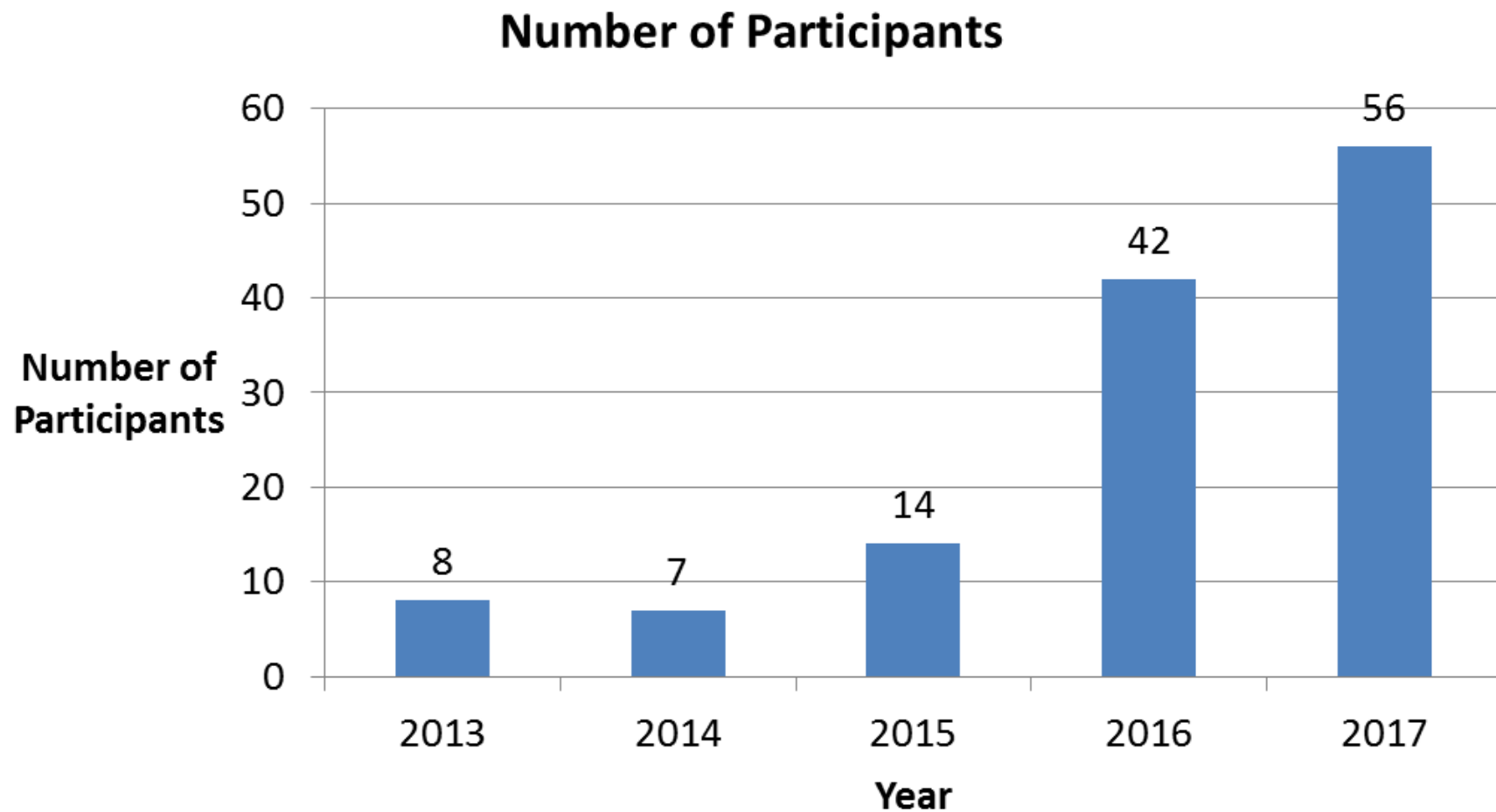
“CITEC recognizes the need to **extend the educational curriculum for young scientists towards topics of research data management** and offers training and personal consulting for advanced researchers, thus contributing to awareness among young researchers of good practice in scientific research.”

→ <https://www.cit-ec.de/en/open-science/manifesto>

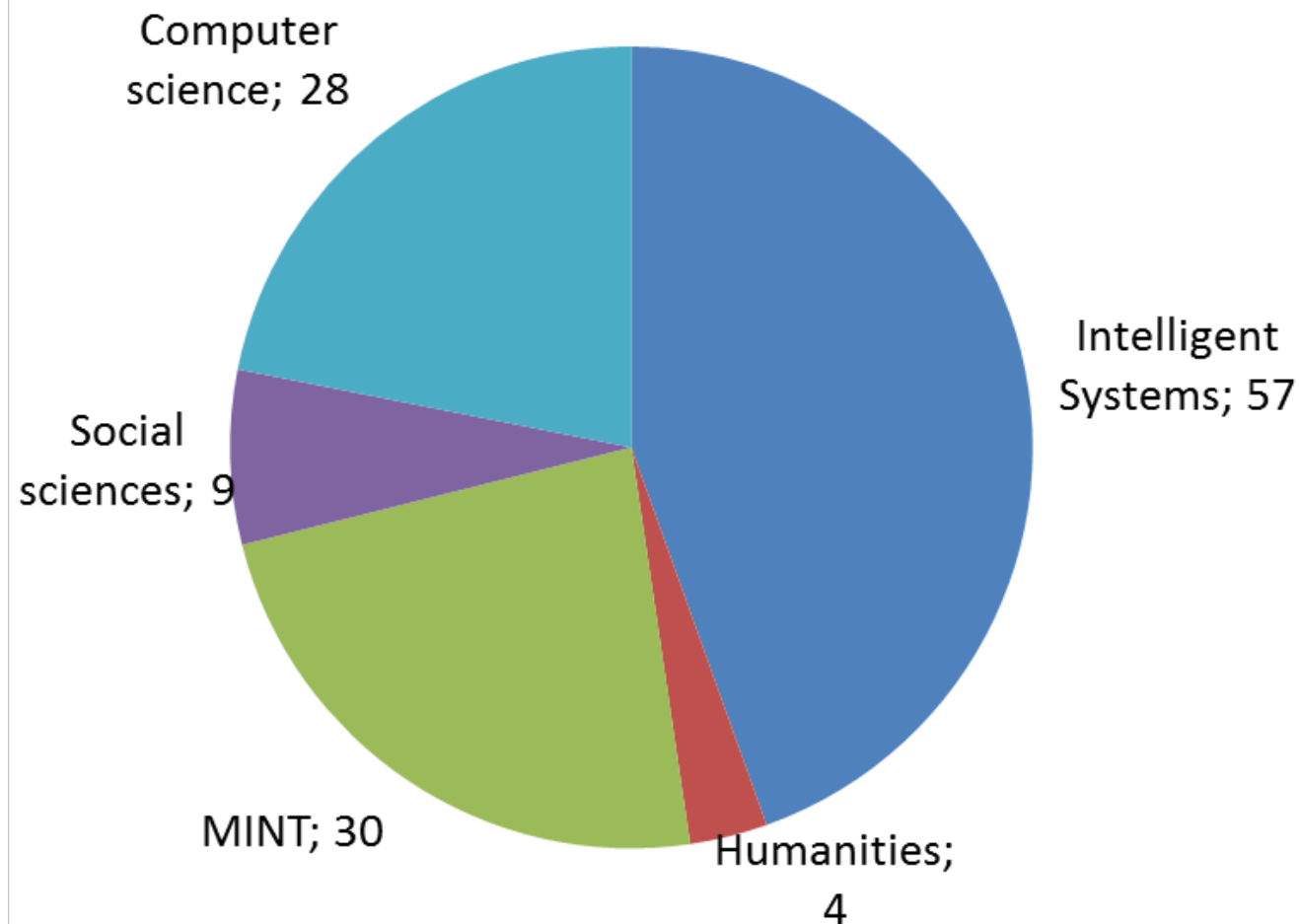
Seminar “Research Data Management”

- ▶ started in Oct. 2013, repeated every winter semester
- ▶ interdisciplinary
- ▶ 15 sessions (1,5 h each)
- ▶ 5 CP as elective module
- ▶ taught in English (since 2015)
- ▶ implemented as a module (in 2016)

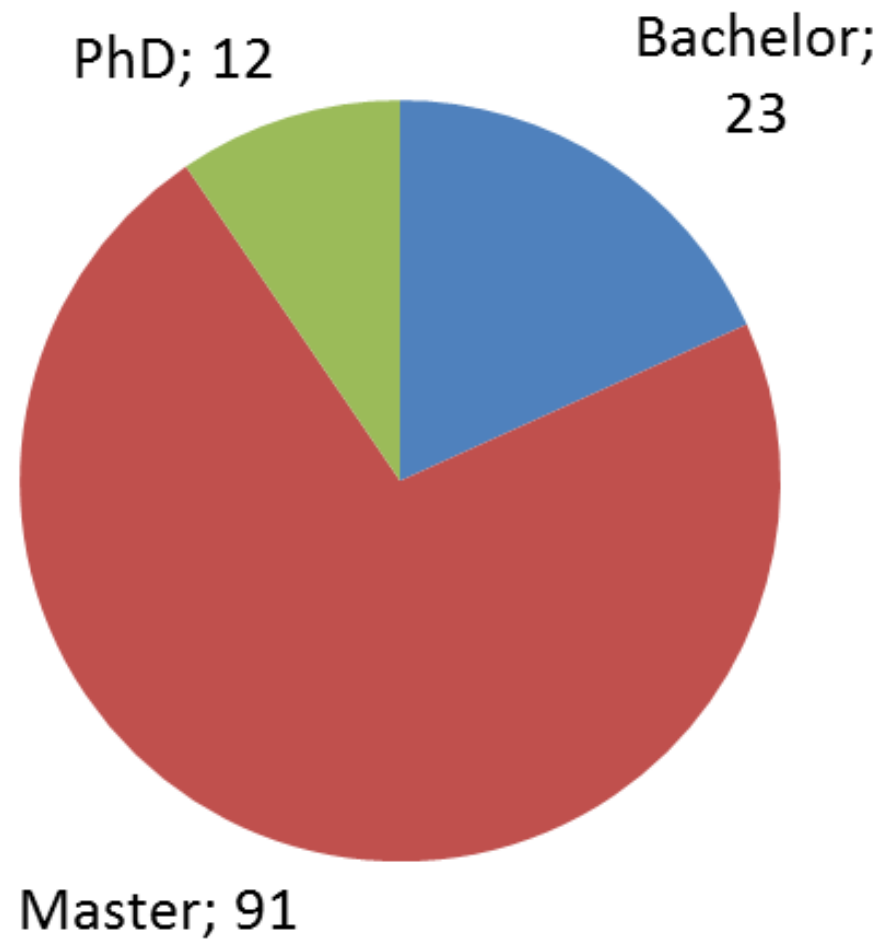
Participants: Number



Participants: Discipline



Participants: Study Programme



Main Questions

- ▶ Which **knowledge, skills and competences** are relevant for mastering research data management?
- ▶ Which **methods of teaching** are best suited?

Objectives of the Seminar

Students shall

- ▶ understand the **motivation**, challenges and solutions of managing research data
- ▶ learn the principles of research data management and its importance for **good scientific practice**
- ▶ acquire **knowledge** of the organizational, technical and legal aspects of managing research data
- ▶ **apply** the acquired knowledge to their own disciplines' research
- ▶ develop **competence** to make up their own mind about the questions of Open Science

Topics of the Seminar

1. Introduction
2. Good Scientific Practice
3. Data, Information, Knowledge
4. Data Backup
5. Data Archiving
6. Organizing Data; Documentation + Metadata
7. Sharing, Publishing, Finding + Re-Using Data
8. Requirements of Funding Agencies
9. Copyright Law and Licenses
10. Sensitive Data and Privacy Protection
11. Data Management Services at Bielefeld University
12. Tools #1: CMS + Wikis, Project Management Software
13. Tools #2: Cloud storage, Version Control Systems (Git)
14. Tools #3: Electronic Lab Notebooks
15. Data Management Plans
16. Open Science

Competence-Based Approach: Mix of methods

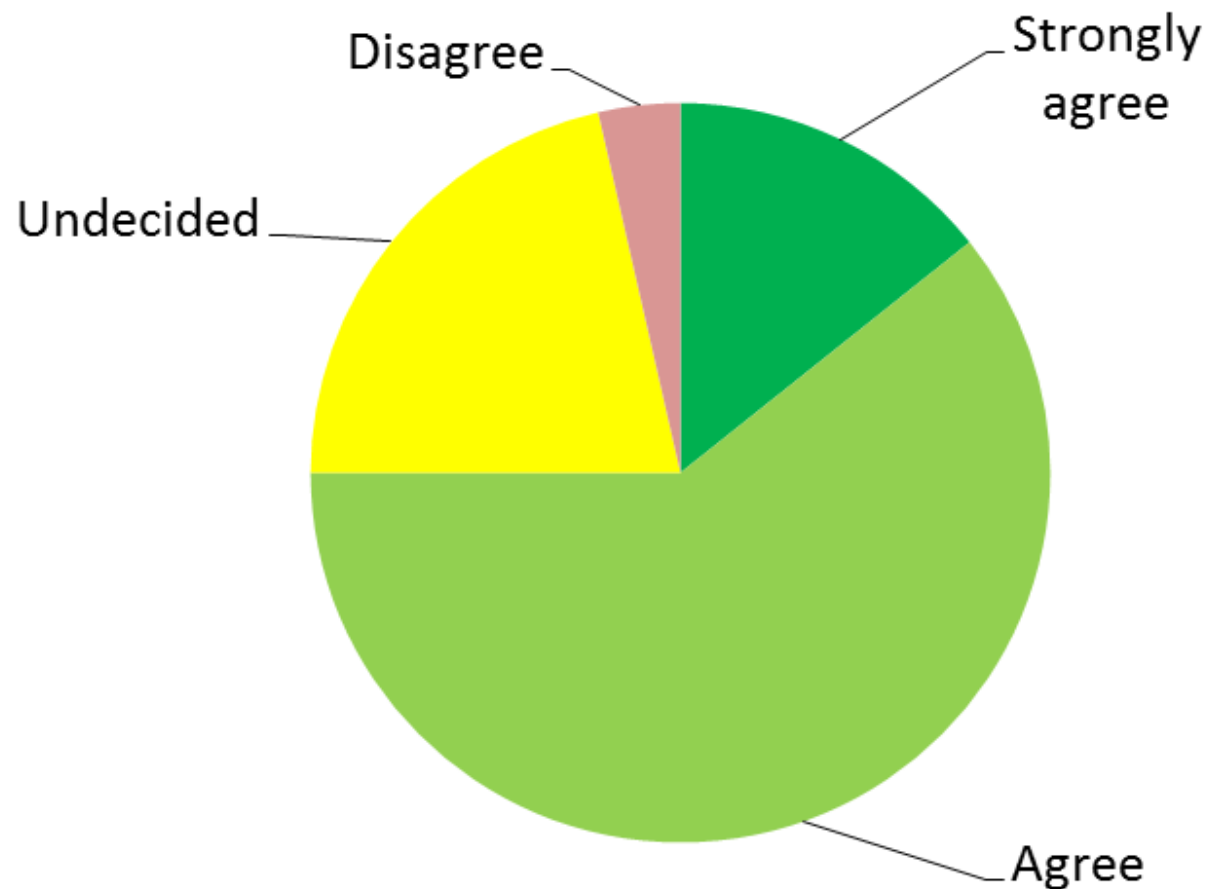
- ▶ start with a current topic or example
- ▶ alternate presentation of knowledge with student assignments (whole-class, group, individual)
- ▶ use real-life examples from disciplines of students
- ▶ include presentations by the participants
- ▶ group discussions

Final Assignment: Data Management Plan

- ▶ students will create their own **data management plan** to organize one of **their own research project**.

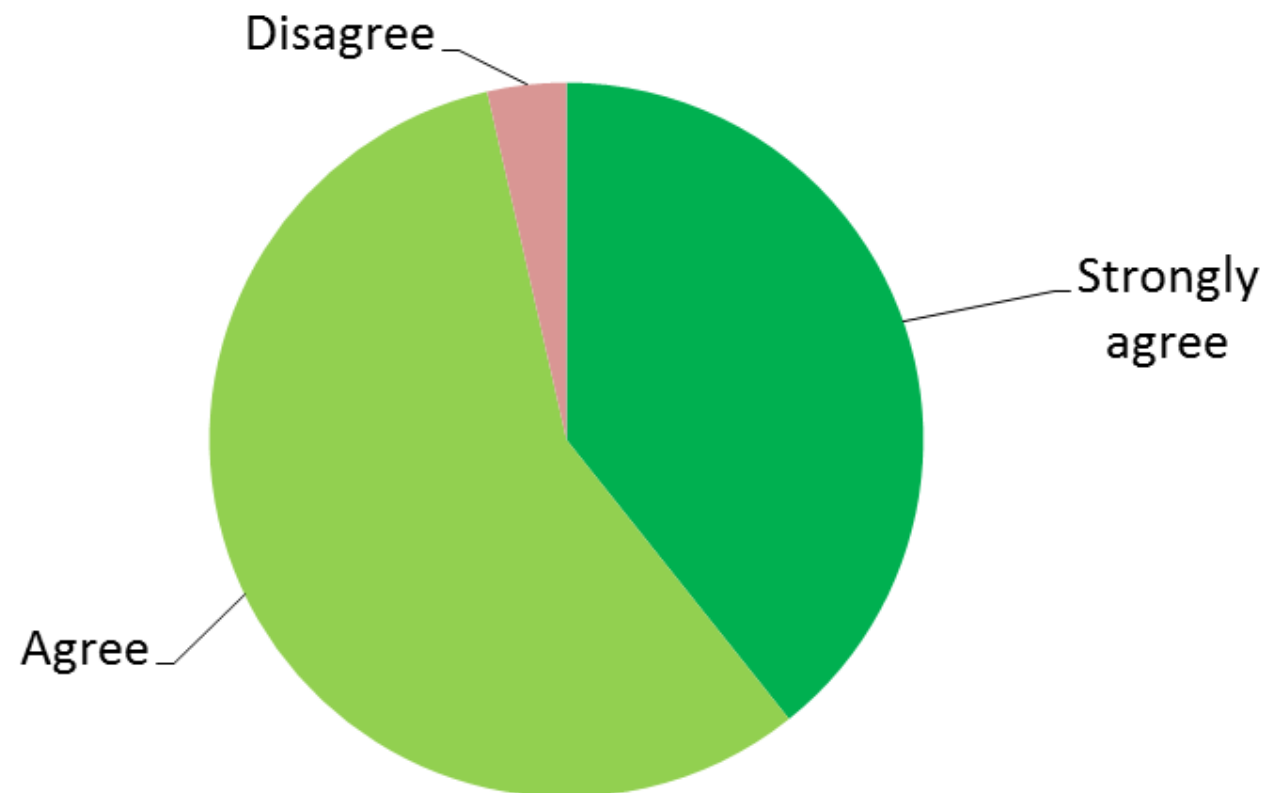
Evaluation

"The seminar was useful for my studies / research."



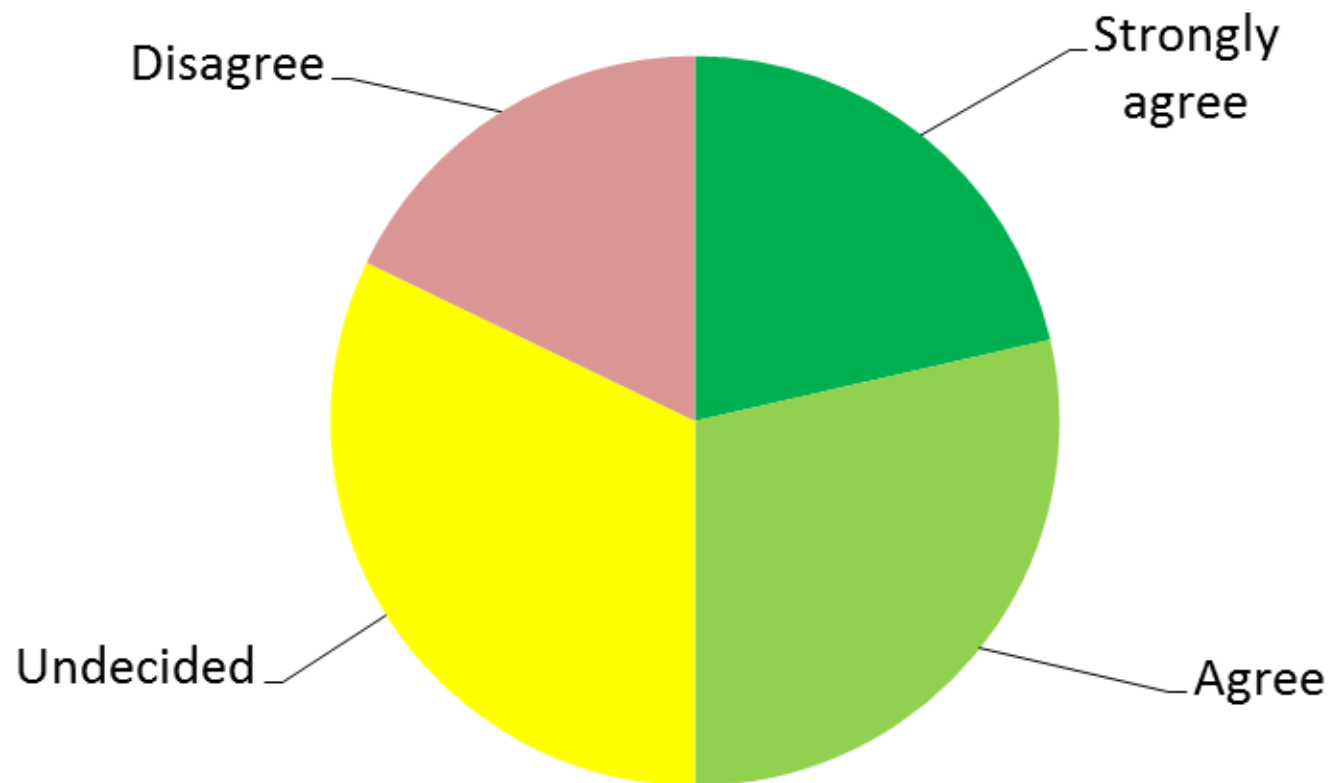
Evaluation

"I would recommend the seminar to other students."



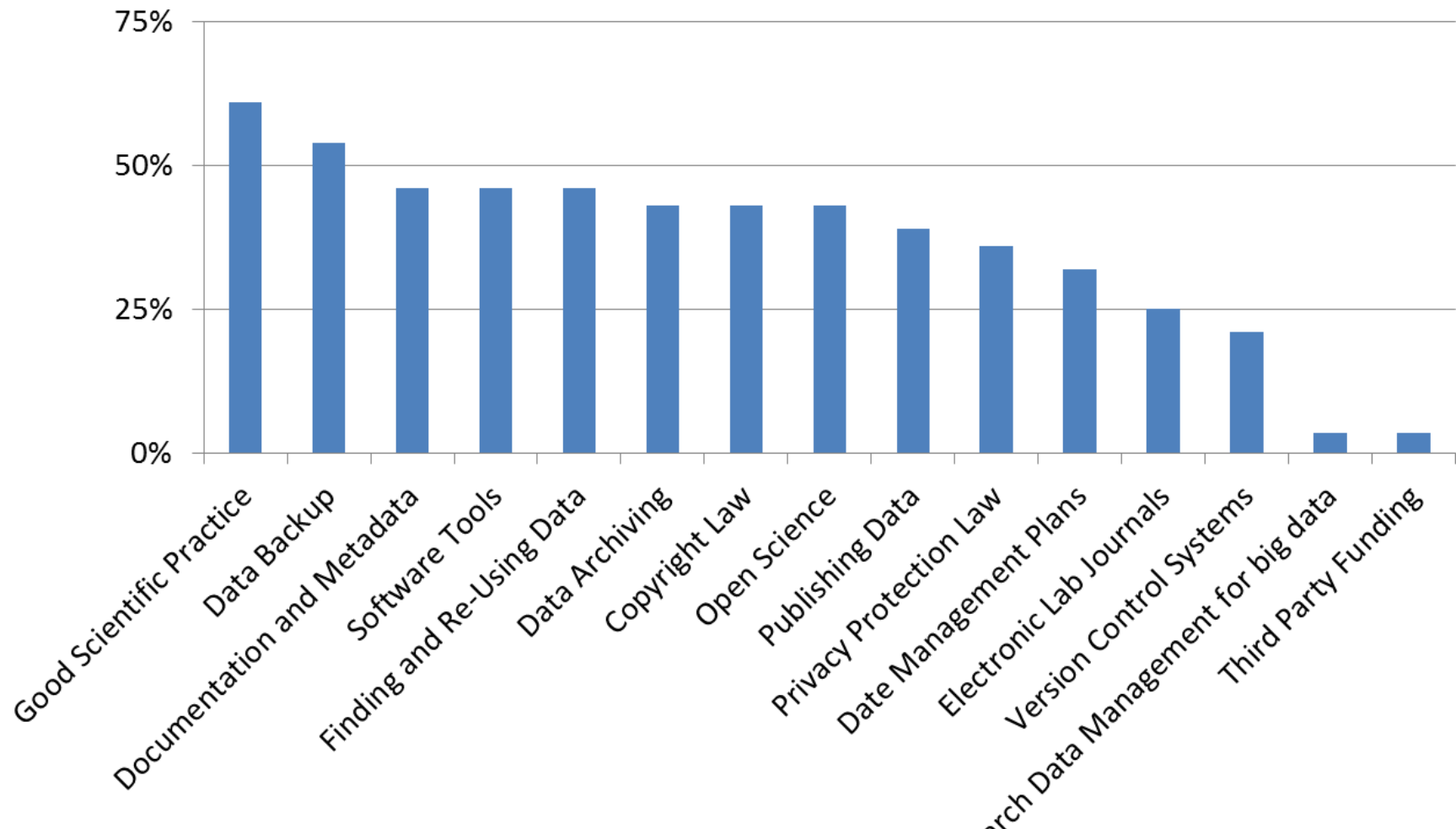
Evaluation

"I would have liked more practical exercises."



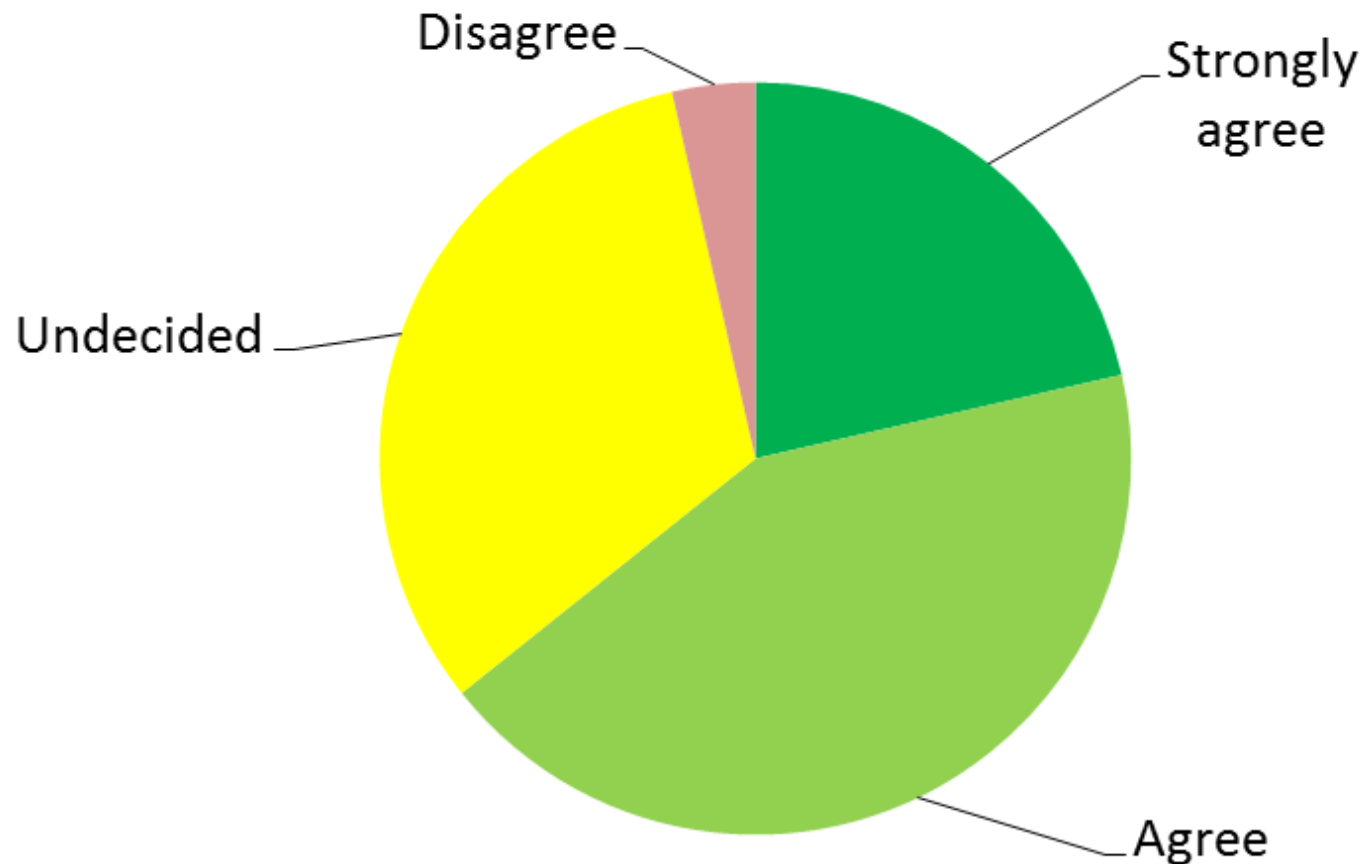
Topics

Which topics would you like to learn more about?



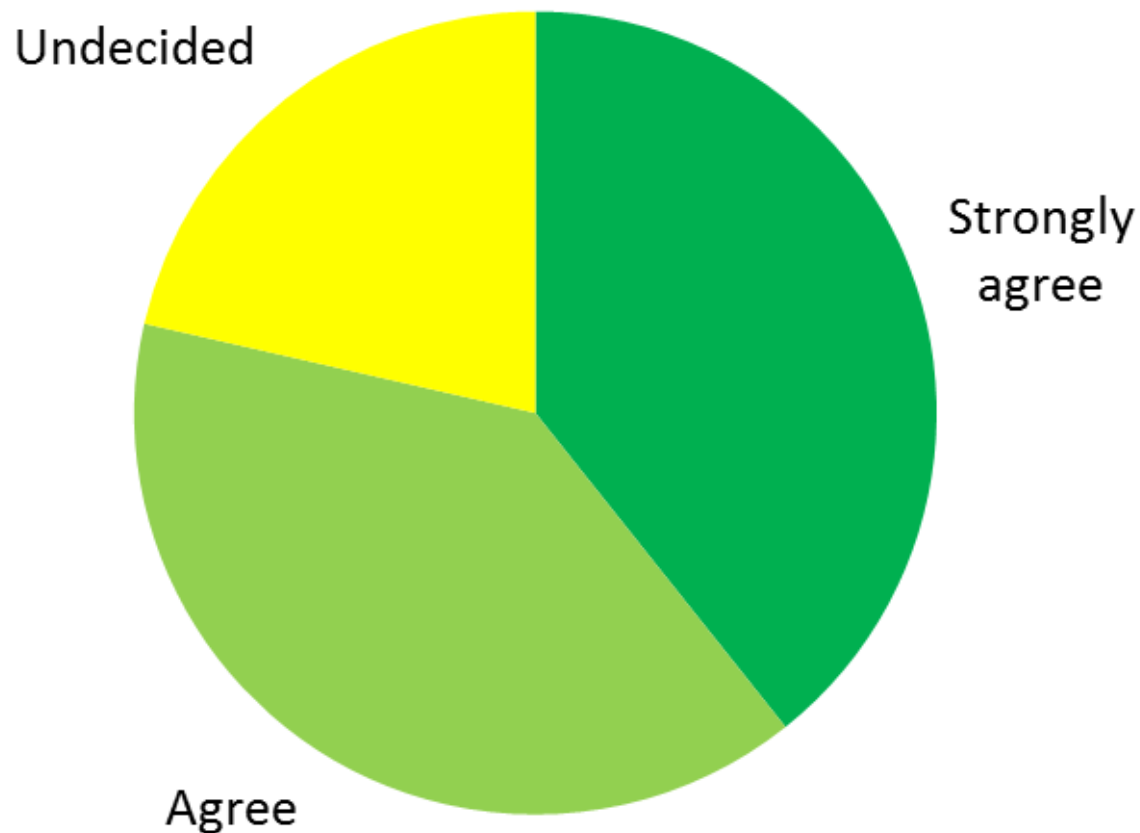
Opinions

"Learning about research data management should be mandatory for students."



Opinion

"Research data should be openly shared."



Comment by Student

“What I found most interesting about the seminar was the part about good scientific practice, which helped me in finding a better understanding of how to properly work on my Bachelor thesis.”