

Lessons learned from teaching FAIR RDM for students

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Questions

- How can a RDM course for students be started?
- How can the course be integrated into a degree programme?
- What topics should be included in the curriculum?
- How is the topic of FAIR data covered in the curriculum?

Principles of research data at Bielefeld University (19 July 2011)

“In order to establish and develop high-quality research data management in a sustainable manner, the specific methods and principles of good scientific practice in teaching and further education should be appropriately addressed.”

[https://uni-bielefeld.de/\(de\)/forschungsdaten/fdm-bi/grundsaeetze/](https://uni-bielefeld.de/(de)/forschungsdaten/fdm-bi/grundsaeetze/)

CITEC Open Science Manifesto (8 March 2013)

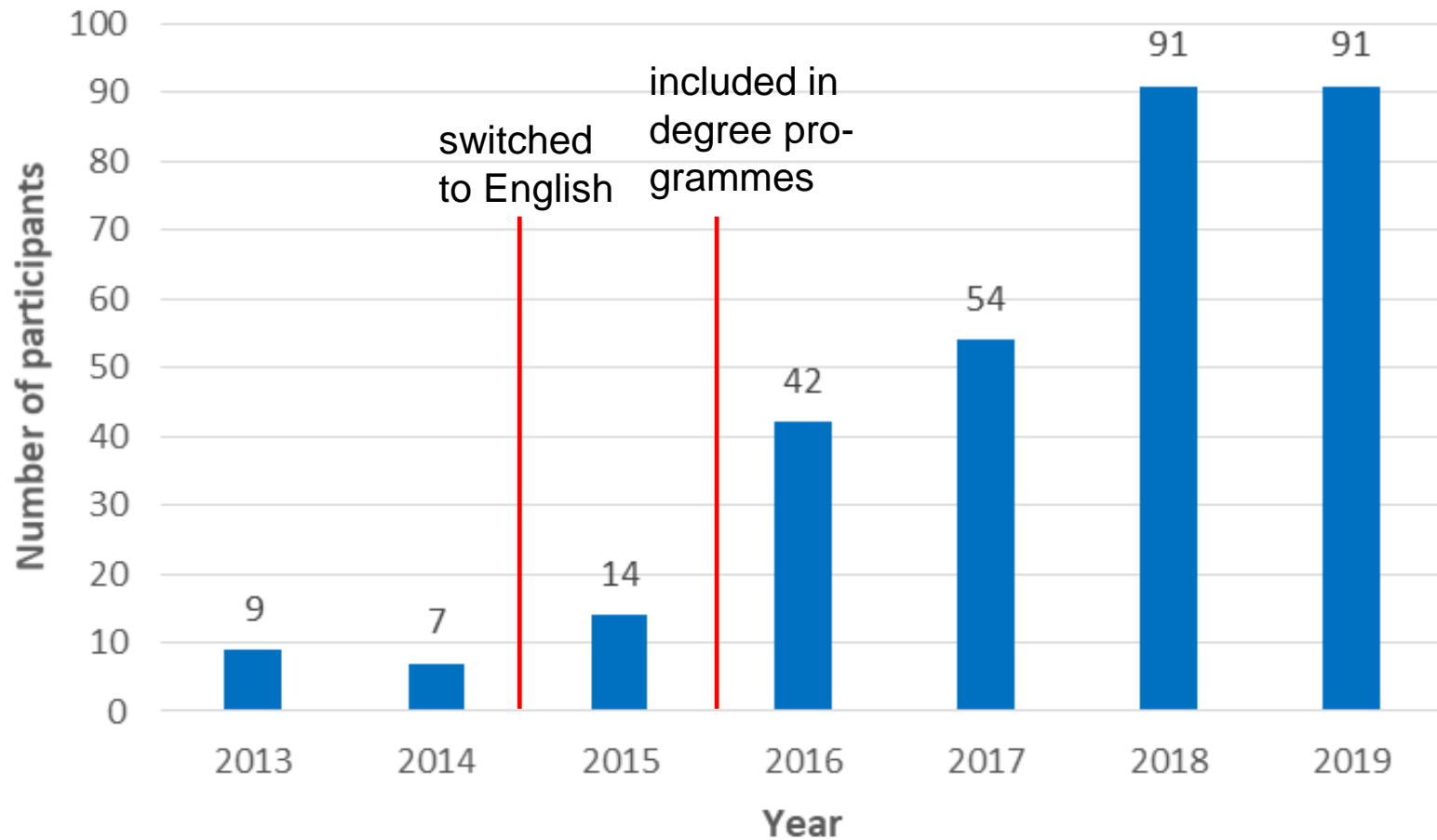
“CITEC recognizes the need to **extend the educational curriculum for young scientists towards topics of research data management** and offers training and personal consulting for advanced researchers, thus contributing to awareness among young researchers of good practice in scientific research.”

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

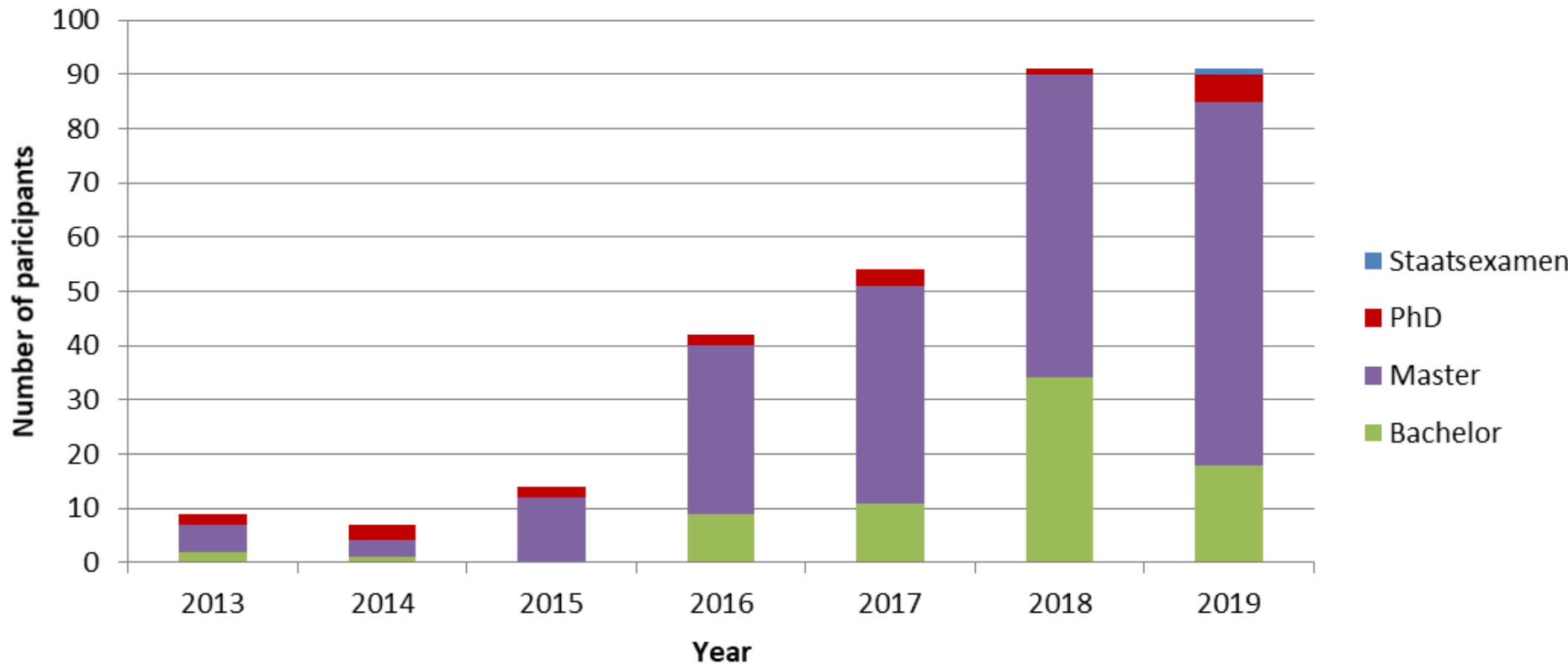
Seminar “Research Data Management“

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

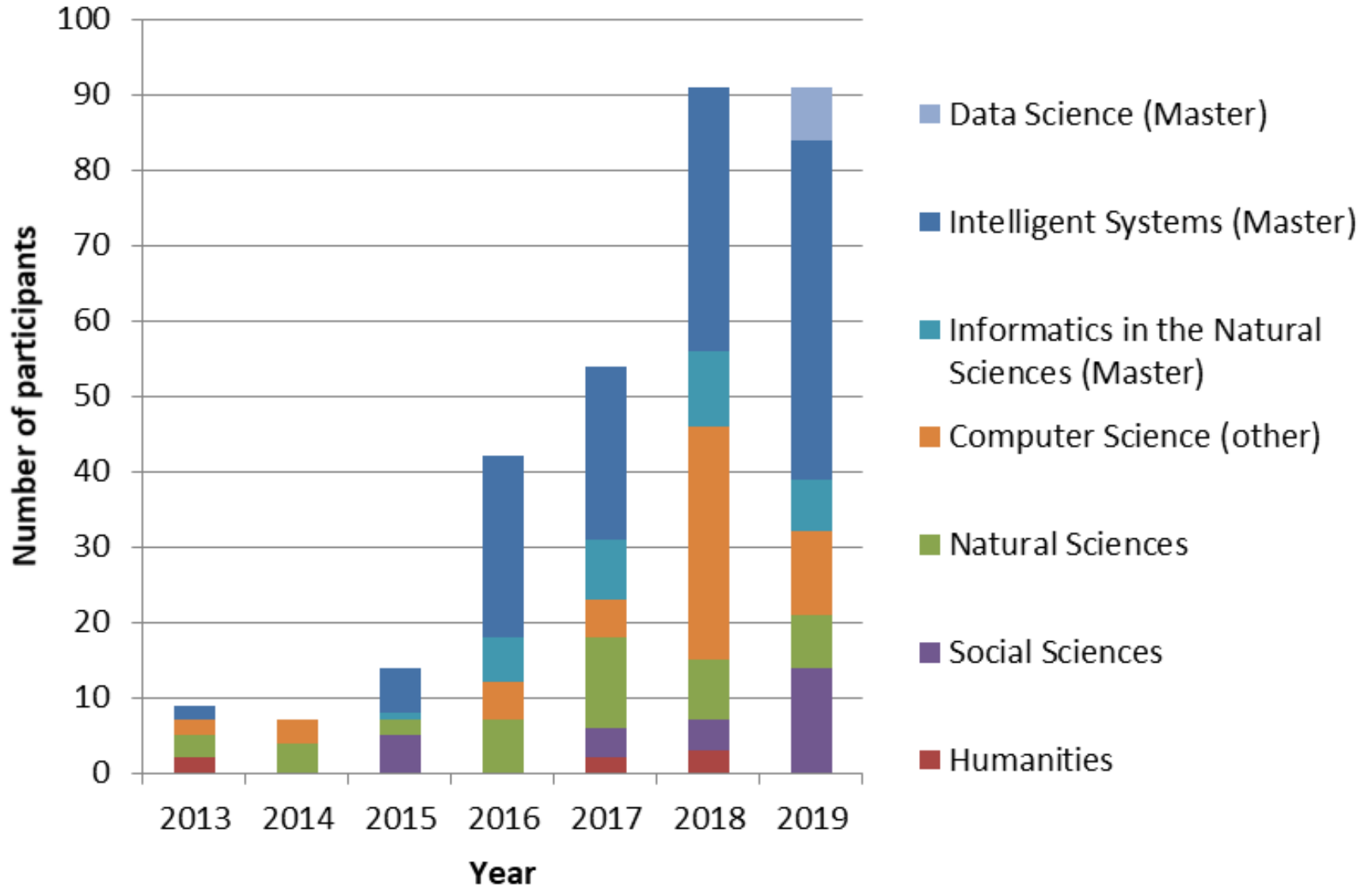
Number of Participants



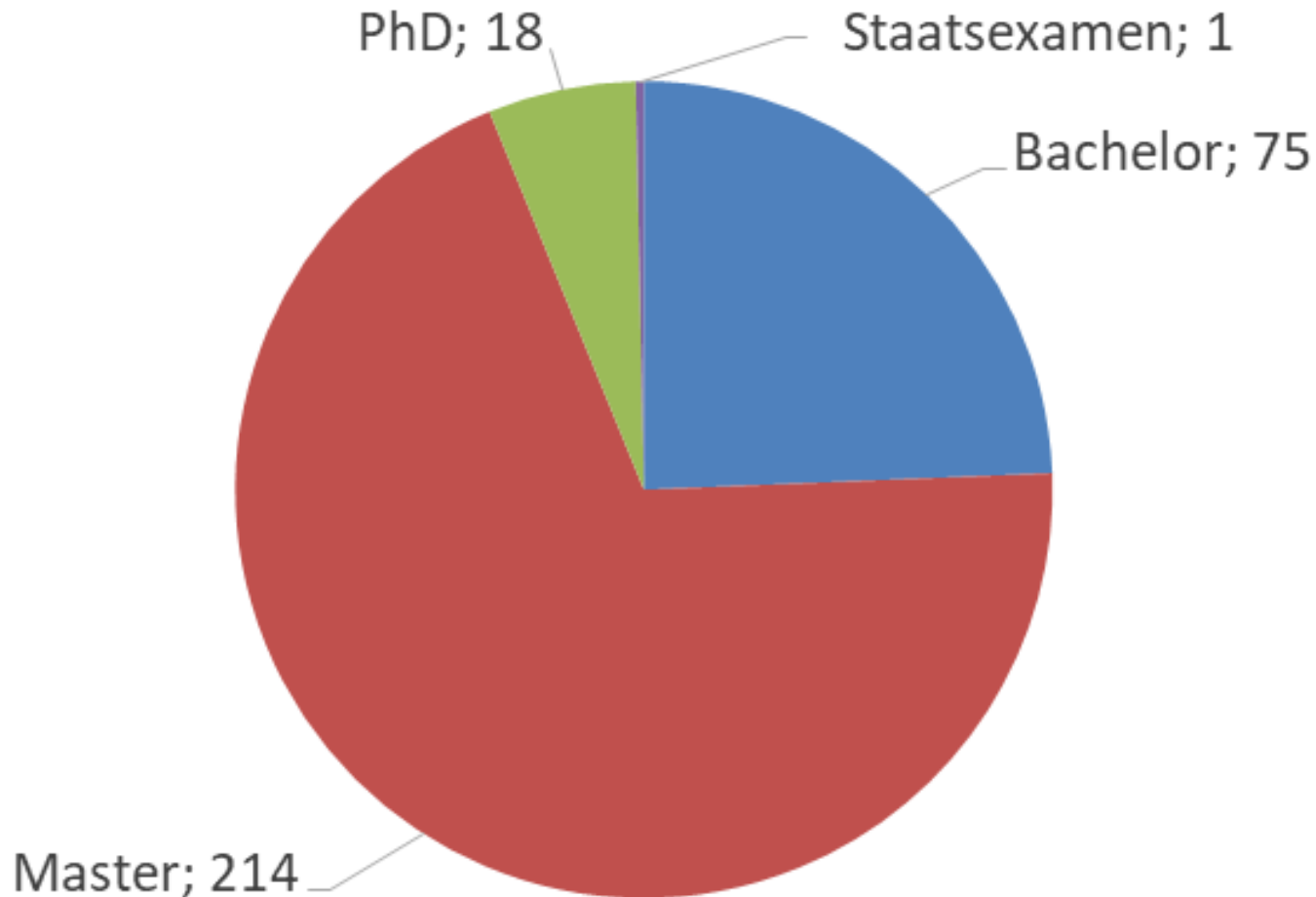
Participants by Programme



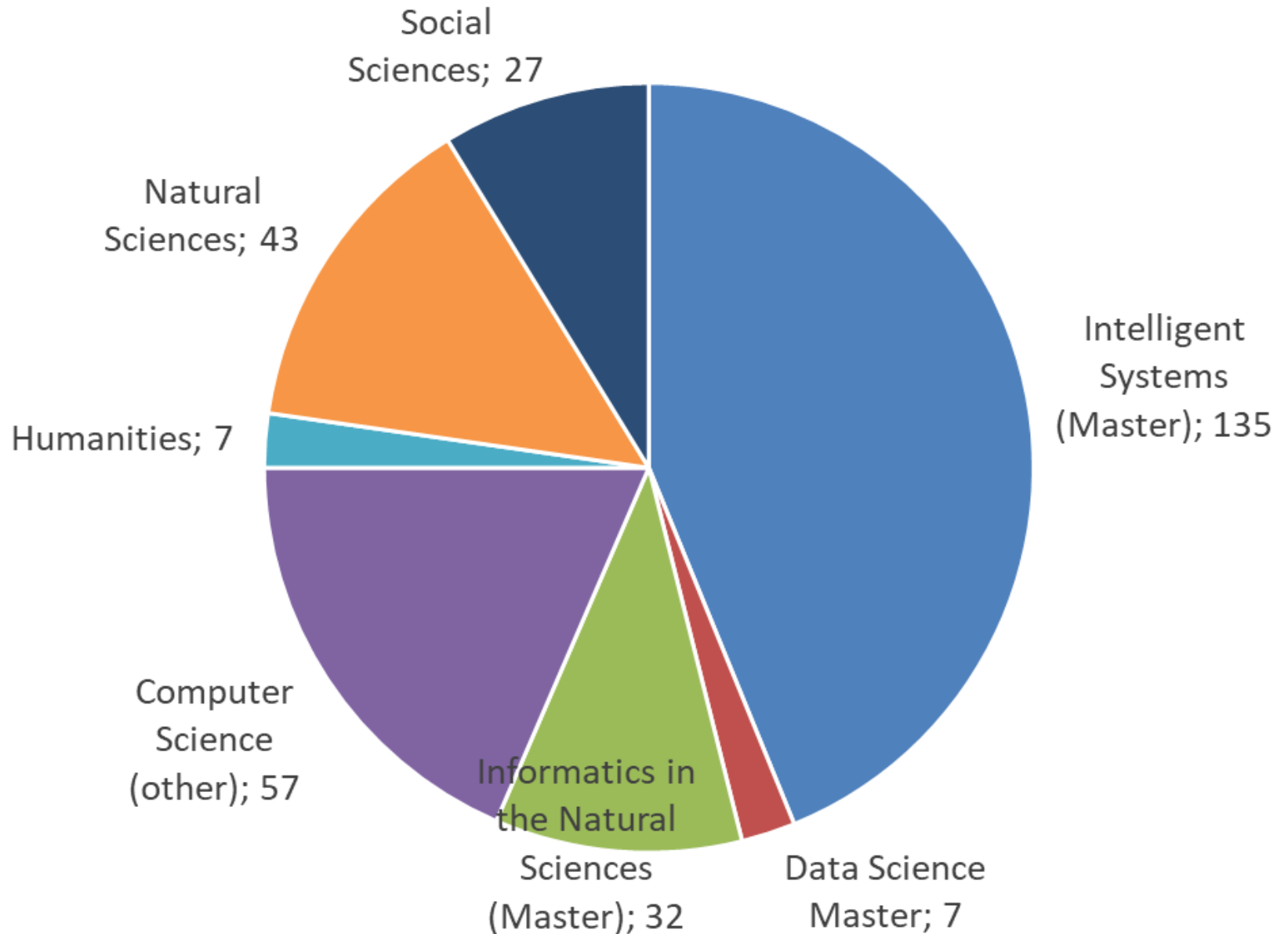
Participants by Discipline



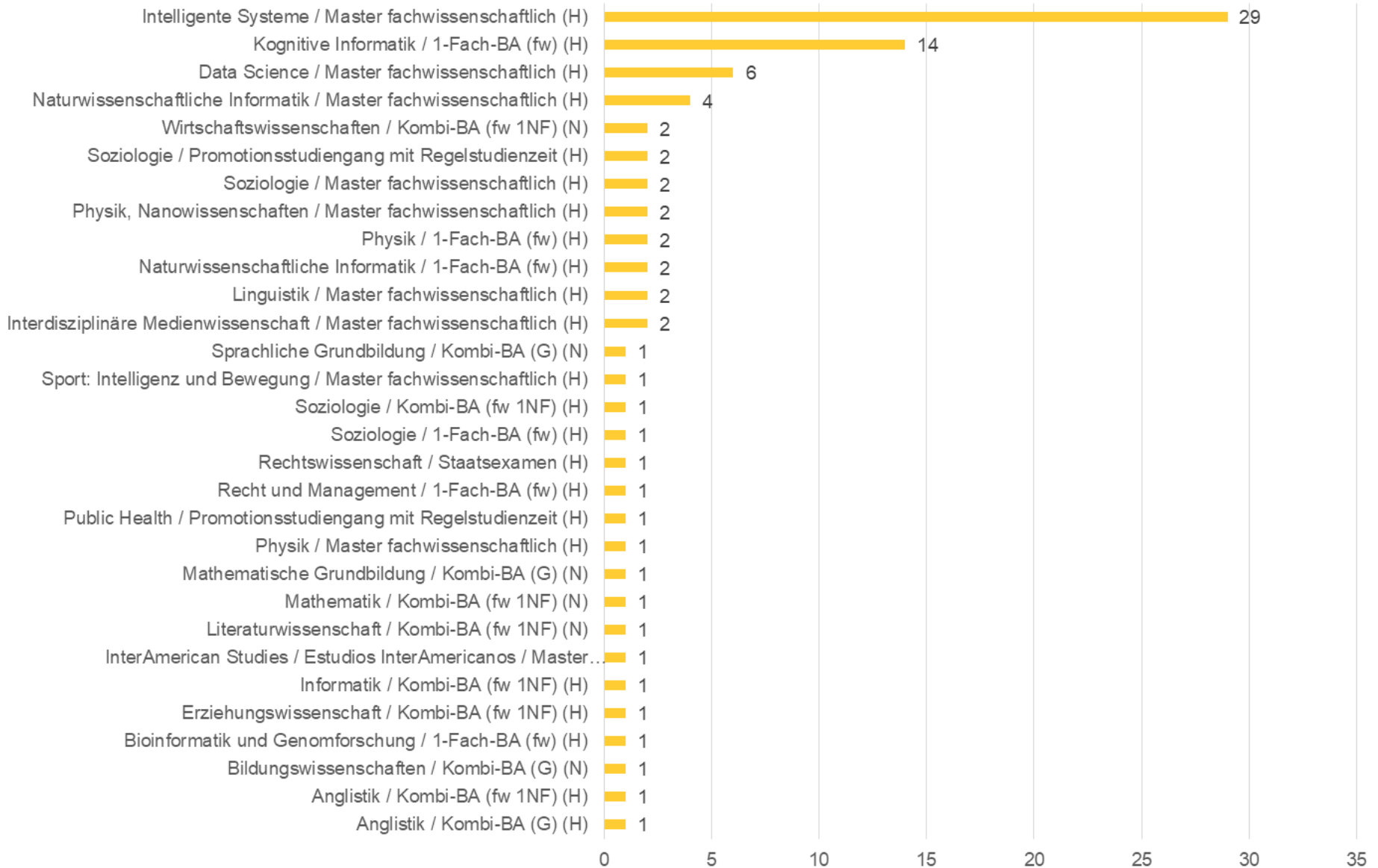
Participants by Degree Programme



Participants by Discipline



Participants WiSe 19/20



Obectives 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

Seminar Plan (WiSe 2019/20)

- 1 Introduction
- 2 Good Scientific Practice **FAIR**
- 3 Data, Information, Knowledge
- 4 Data Backup
- 5 Data Archiving
- 6 Documentation, Metadata + Linked Data **FAIR**
- 7 Sharing and Publishing Data, **FAIR Principles**, Copyright Law **FAIR**
- 8 Finding and Re-Using Data **FAIR**
- 9 Tools: GitLab + Git
- 10 Data Protection and Safety
- 11 RDM Services at Bielefeld University
- 12 Data Management Plans **FAIR**
- 13 Open Science **FAIR**

Hands-on Sessions

1. CMS + Wikis, Project Management Software
2. Cloud storage (sciebo/Owncloud)
3. Version Control Systems (Git)
4. Electronic Lab Notebooks

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

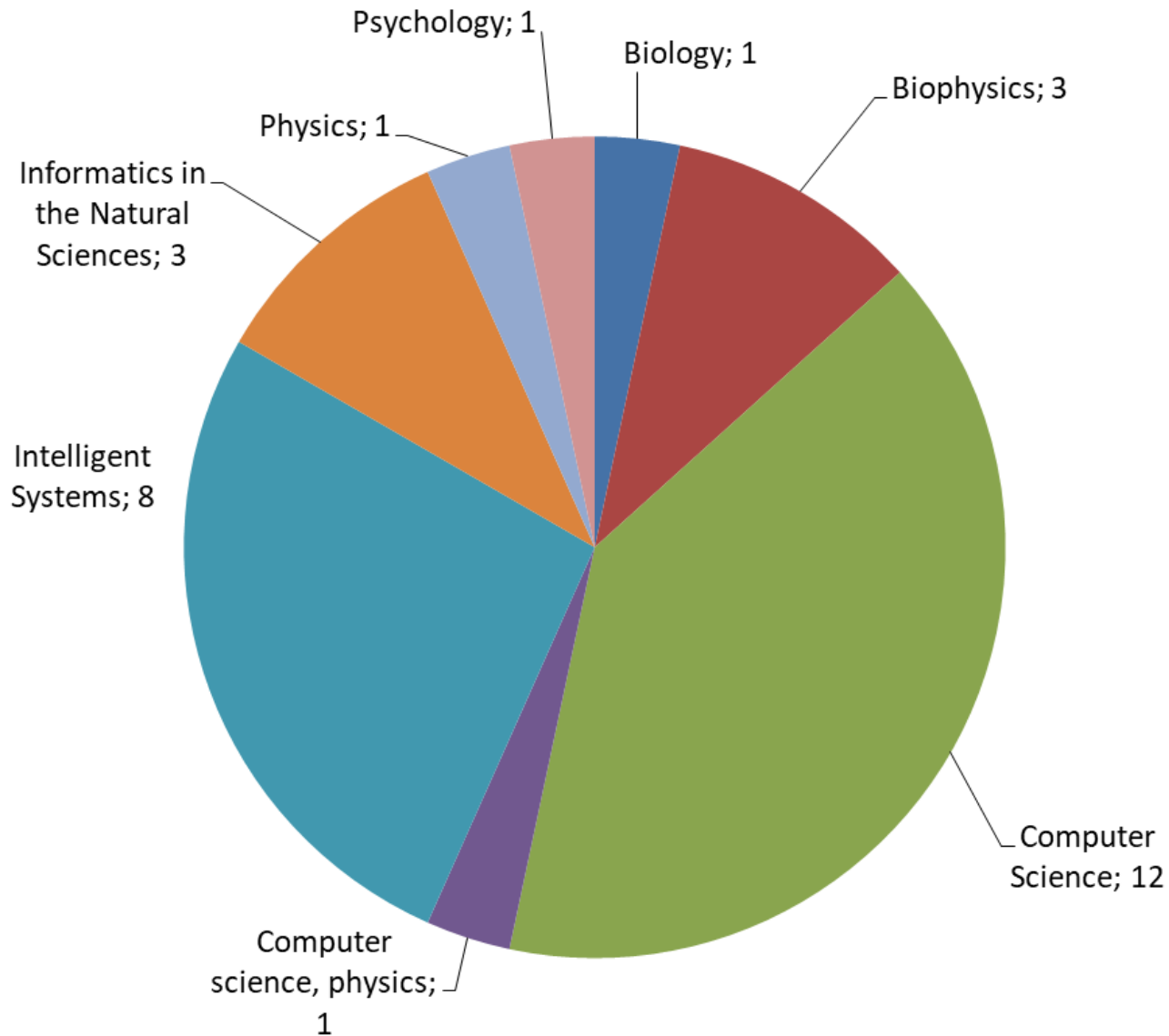
Group discussion „Open Science“

- Topic „Open Science – How open can and should science be?“
- Moderated discussion
- participants assume roles e.g.
 - progressive researcher
 - conservative researcher
 - rector of a university
 - science politician
 - ...

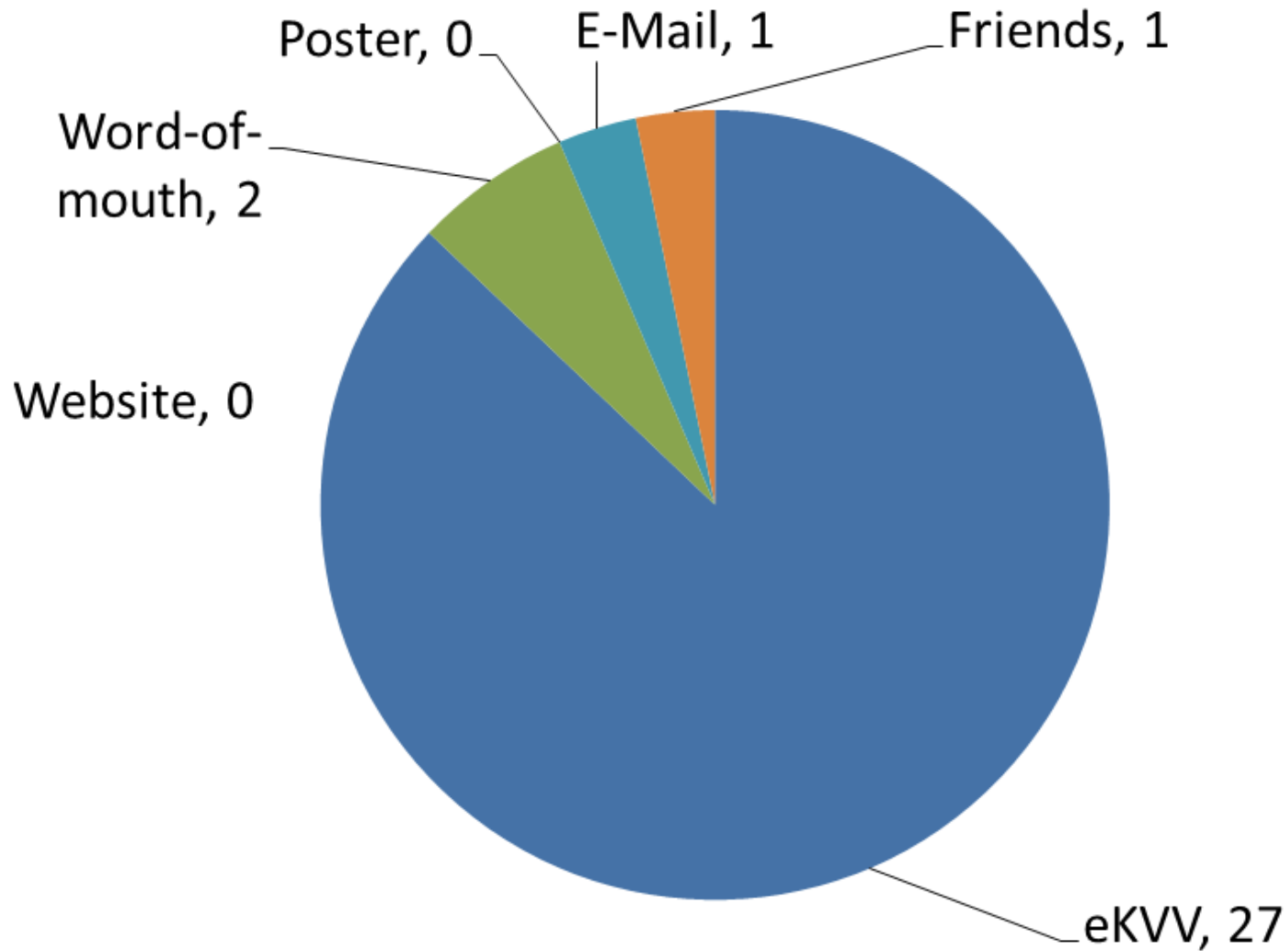
Final Assignment: Data Management Plan

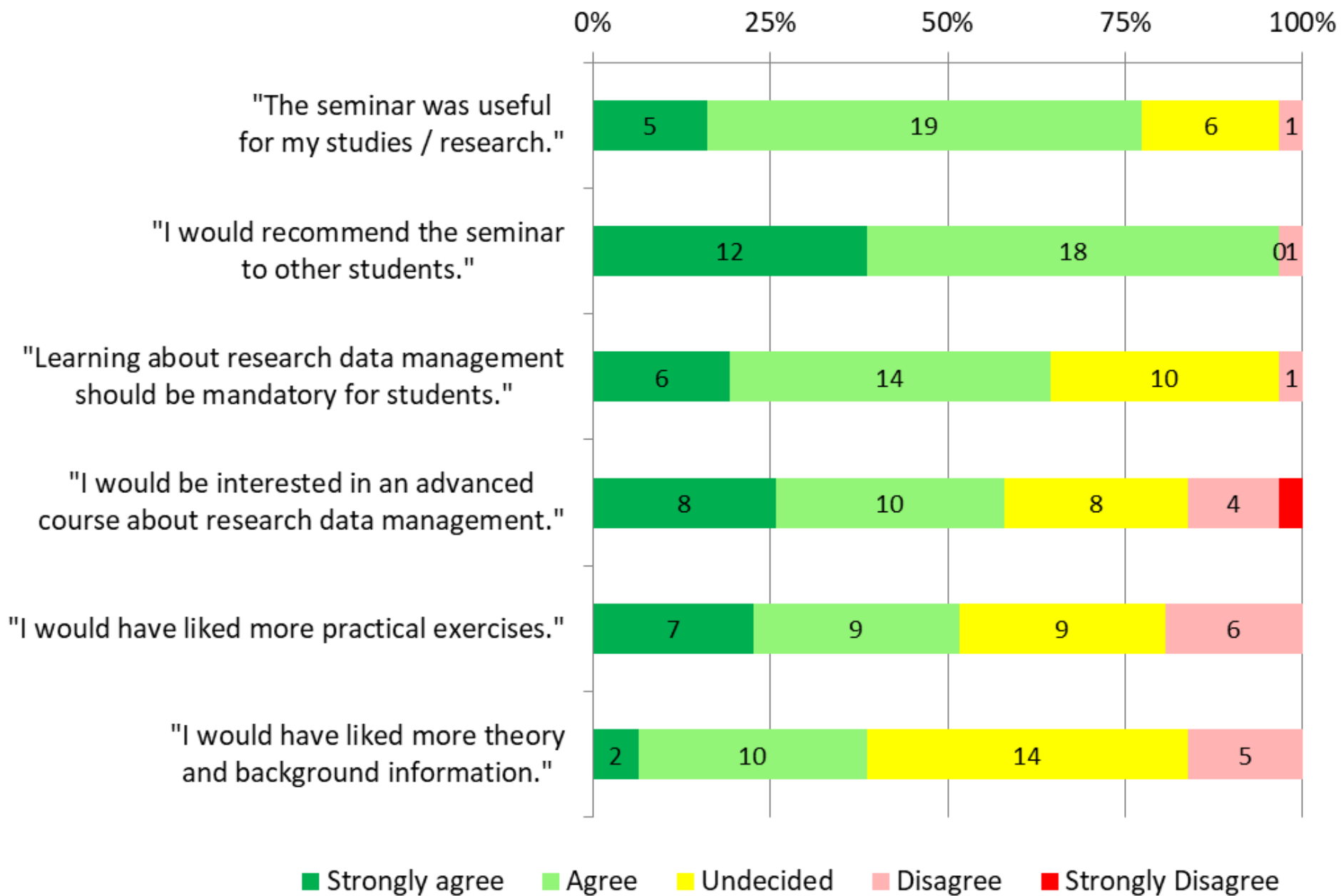
students will create their own **data management plan** to organize one of **their own research project**.

Survey: Participants

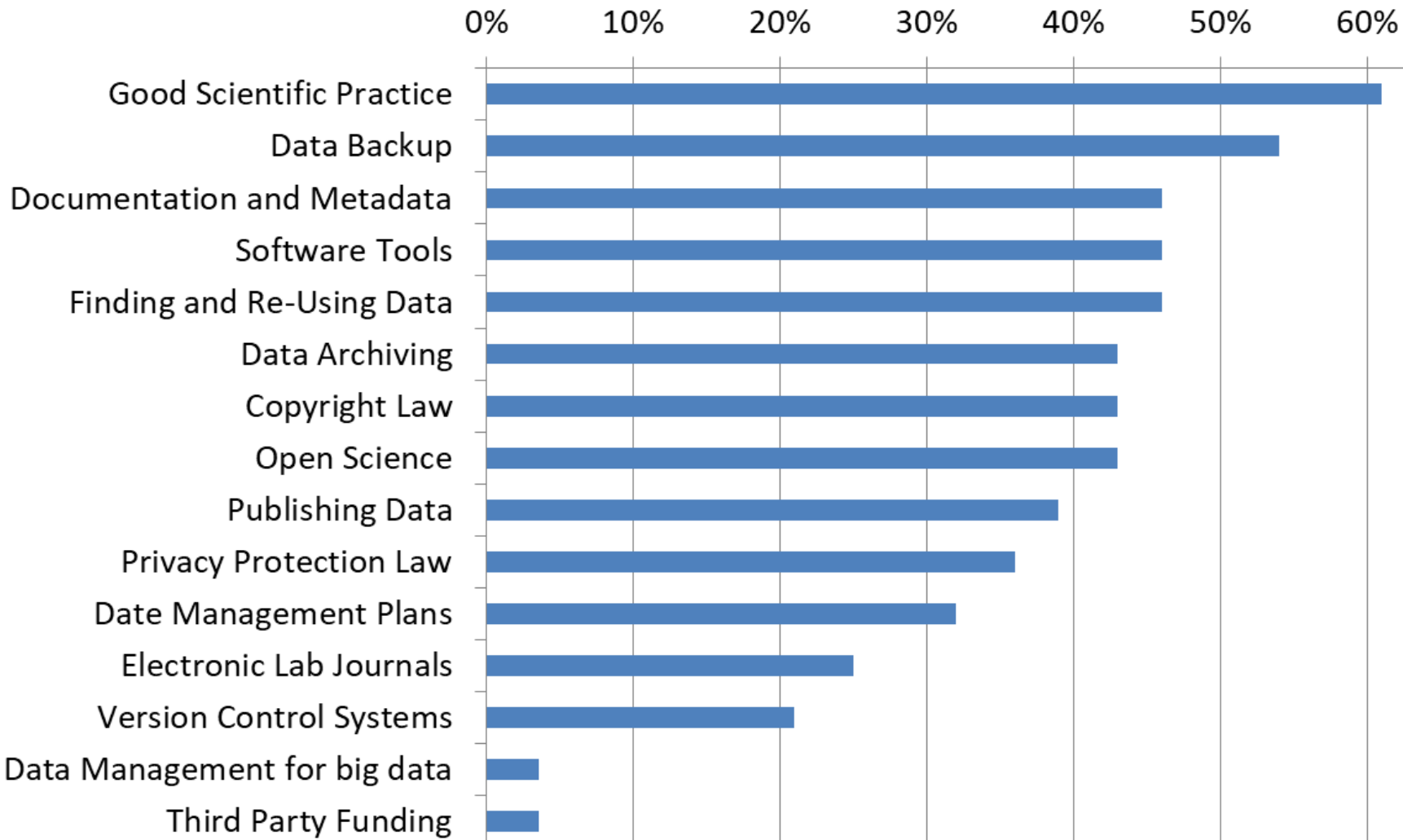


How did you learn about the seminar?





Which topics would you like to learn more about?



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.”

RDM Courses for Researchers

- PEP-Seminars
 - „Introduction to RDM“ (4 h, each semester)
 - „Writing a DMP“ (2h, each semester)
 - „Manage Research Data and Software with GitLab“(4 h, each semester)
- Roadshow: On-demand presentation in group meetings

RDM for Students

- Seminar „Research Data Management“
- Data Literacy courses (1,5h ea, each semester)
 - “Introduction to good scientific practice”
 - “Data protection for personal data in research projects”
 - “Avoid data loss with backups”
 - “Finding and using research data”

Next Steps: Co-operation

- develop a shared curriculum
- exchange teaching materials using open licenses
- exchange experiences with different teaching methods

More info in

Wiljes, C., & Cimiano, P. (2019). Teaching Research Data Management for Students. *Data Science Journal*, 18(1), 38. <https://doi.org/10.5334/dsj-2019-038>

Thank You!



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