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Where to next?

SARAH VON GREBMER ZU WOLFSTHURN

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About these materials



These slides are a derivative of [“What’s Next?” by Verena Heise](#) used under the [CC BY 4.0 License](#). The current slides “Where to next?” by Sarah von Grebmer zu Wolfsthurn are also licensed under a [CC BY 4.0 license](#).

Preparatory reading

To read before starting:

Heise, V., Holman, C., Lo, H., Lyras, E. M., Adkins, M. C., Aquino, M. R. J., ... & Weissgerber, T. L. (2023). [Ten simple rules for implementing open and reproducible research practices after attending a training course](https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1010750). *PLOS Computational Biology*, 19(1), e1010750.

<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1010750>

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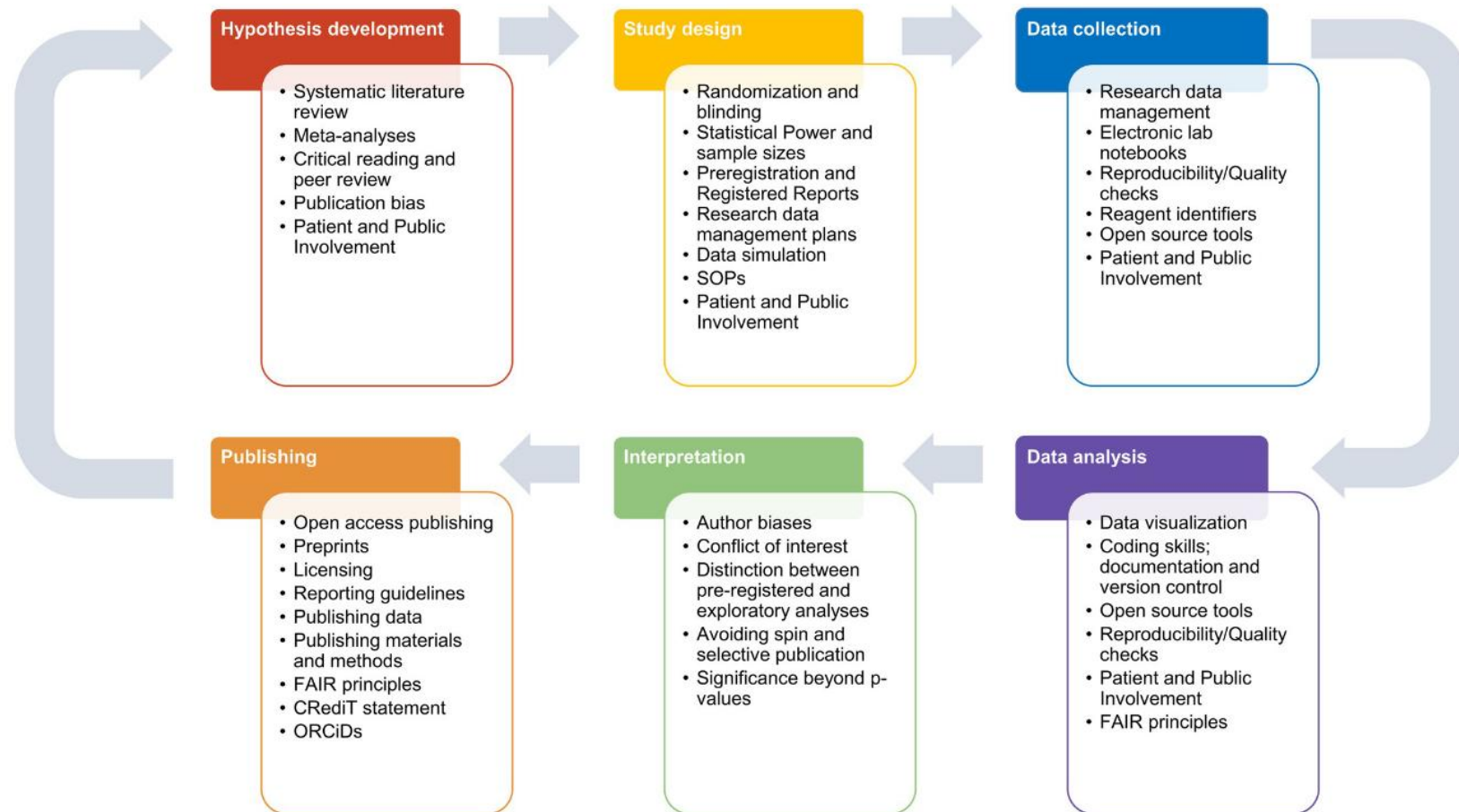
What to expect in this session

You have practiced so many different skills...

But now..

Let's brainstorm on what
your own next steps are!

Open and reproducible research practices



<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1010750#sec004>

Today

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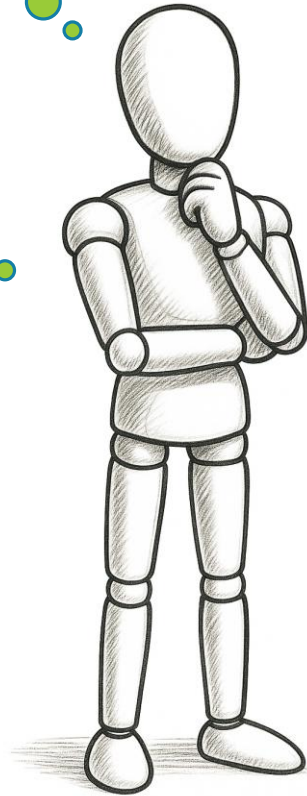
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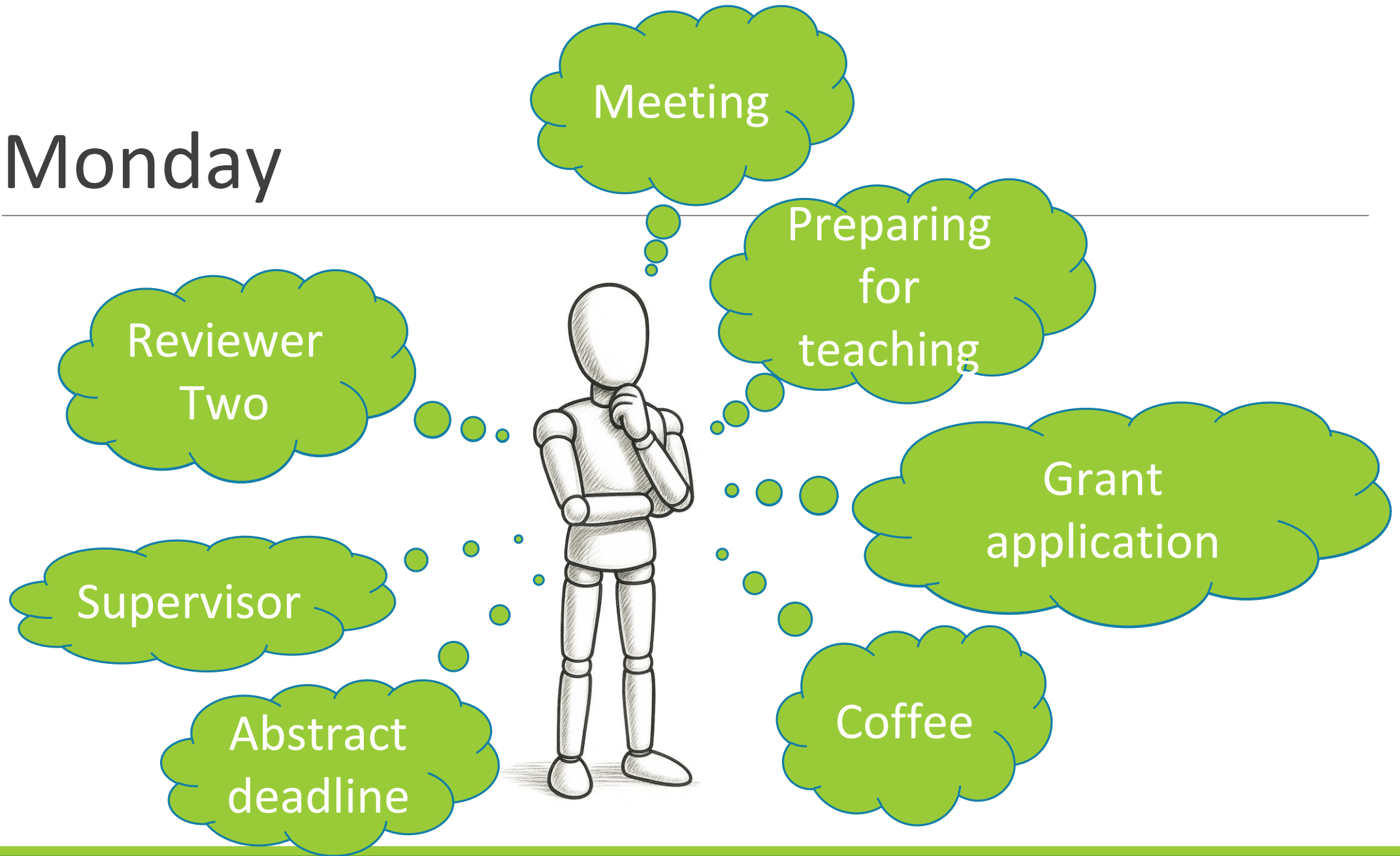
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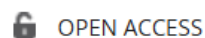
Preregistration

Quarto



Monday





OPEN ACCESS

REVIEW

Ten simple rules for implementing open and reproducible research practices after attending a training course

Verena Heise, Constance Holman, Hung Lo, Ekaterini Maria Lyras, Mark Christopher Adkins, Maria Raisa Jessica Aquino, Konstantinos I. Bougioukas, Katherine O. Bray, Martyna Gajos, Xuanzong Guo, Corinna Hartling, Rodrigo Huerta-Gutierrez, Miroslava Jindrová, [...], Tracey L. Weissgerber  [view all]

Published: January 5, 2023 • <https://doi.org/10.1371/journal.pcbi.1010750>

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6,153
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92
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<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1010750>

Roadmap: Stages of implementation

- Phase 1: **Plan** = prioritizing and planning of implementation
- Phase 2: **Implement** = implementing and managing problems during implementation
- Phase 3: **Looking to the future** = making reproducible research practices an intrinsic part of the research / research career

Ten Simple Rules

Rules	Stages		
	Plan	Implement	Look to the future
Rule 1: Make a shortlist	x		
Rule 2: Join a community	x	x	x
Rule 3: Talk to your study team	x		
Rule 4: Address resistance constructively	x	x	
Rule 5: Decide what to implement. Make a plan.	x	x	
Rule 6: Compromise and be patient		x	
Rule 7: Reassess and adapt your plan		x	
Rule 8: Share best practices and lessons learned			x
Rule 9: Get credit. Make your contributions visible.			x
Rule 10: Seek supportive future employers			x

<https://doi.org/10.1371/journal.pcbi.1010750.t001>

Ten Simple Rules

Rules	Stages		
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Rule 8: Share best practices and lessons learned			x
Rule 9: Get credit. Make your contributions visible.			x
Rule 10: Seek supportive future employers			x

<https://doi.org/10.1371/journal.pcbi.1010750.t001>

Phase 1: Plan

- Focus on rules 1-5
- Questions to ask:
 - What is **relevant** to your project/field?
 - What is relevant to your **project at this stage**?
 - What are relevant institutional/ funder **policies**?
 - Which **resources** are available?
 - What are my **own interests and skills**?
 - Where can I get **support** from? (research group, institution, national/ international organization)

Your turn! (10 mins)

- Which practice(s) (up to three) would you like to implement first?
- Who can support you with implementation?



Tips for planning and support

- **Colleagues** in your department
- Institutional **support services** (IT, library, Open Science Center,...)
- Interest groups (institutional/ national/ international)
- Scientific societies (incl. German Reproducibility Network)
- **Funders**
- Publishers
- ...

Phase 2: **Implement**

- Focus on rules 4 - 7
- You will run into obstacles ☹ be flexible and adapt, it's a marathon, not a sprint
 - Technical obstacles (skills, infrastructure, resources, ...)
 - Social obstacles (team, supervisor, collaborators, ...)
 - Personal obstacles (life happens!)

Your turn! (10 mins)

- Which obstacles (technical or social) do you foresee?
- How can you deal with those obstacles?



Tips for implementation

- **Anticipate** (social) **resistance**
 - Assume positive intent
 - Be **constructive** and ready to compromise
 - Different arguments work for different people
 - Focus on easy wins (especially in environments with high resistance)
 - Be **patient** and reassess your goals regularly
 - Look after yourself

Phase 3: **Looking to the future**

- Focus on rules 8, 9, & 10
- Make changes **sustainable** in your group/ department/ institution
- Teach **others**
- Get **credit**
- Seek out (new) **job opportunities** where your skills and ideas are valued

Your turn! (10 mins)

- How can you make changes **sustainable**?
- How can you **teach others**?
- How can you get **credit** for your work?
- How can you find **job opportunities** where your skills are valued?



Tips for the future

- **Sustainability:** write documentation, support others, join/ start a movement
- **Teaching:** formal and informal learning-by-doing – ideas see here: <https://doi.org/10.7554/eLife.89736> and <https://www.osc.uni-muenchen.de/news/11strategies/index.html>
- **Credit:** document your progress, apply for awards, add info to your CV
- **New opportunities:** define your values and what you expect from your next job, might be in research support roles or with other stakeholders



Some inspiration from the paper ...

- When **discussing** research **practices** in your team:
 - “It is important to *approach others with a positive attitude*. Your goal is *not to criticize*, but to suggest future *improvements*.”
 - “It is OK if you *cannot convince everyone*.”
- **Implementing** new research **practices** more generally:
 - “Research improvement is a *marathon*, not a sprint.”
 - “Priorities shift (..). *That is OK*.”
- **Looking after yourself:**
 - “*Balance* what you want to do with what you can do; *do not commit to more than you can achieve*.”
 - “Do not be afraid to *say no* (..) if you feel overwhelmed”



“Open Science is a buffet”

- Christina Bergmann

- **Unrealistic** to implement every open research practice at once (and it's not as if every practice suits every research design anyway)
- Tailor the suggested solutions to their specific research projects (Nuijten, 2019)
- **Start** with something **practical and low effort**
 - Tidy up one of your folders
 - Make one preprint available
 - Preregister one study
- **Come back for more**

Questions or comments?



Thanks so much! 😊

Reach out if you have any comments or questions!

<https://www.osc.lmu.de/>

OSC Website with more educational resources for teaching novices:

<https://github.com/lmu-osc/teaching-material-for-novices>



References

- Heise, V., Holman, C., Lo, H., Lyras, E. M., Adkins, M. C., Aquino, M. R. J., ... & Weissgerber, T. L. (2023). Ten simple rules for implementing open and reproducible research practices after attending a training course. *PLOS Computational Biology*, 19(1), [e1010750](#).
- Kohrs, F. E., Auer, S., Bannach-Brown, A., Fiedler, S., Haven, T. L., Heise, V., ... & Weissgerber, T. L. (2023). Eleven strategies for making reproducible research and open science training the norm at research institutions. *Elife*, 12, [e89736](#).
- Nuijten, M. B. (2019). Practical tools and strategies for researchers to increase replicability. *Developmental Medicine & Child Neurology*, 61(5), 535-539.