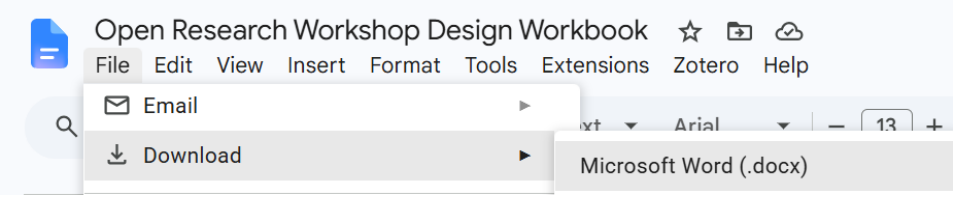
Open Research Workshop Design Workbook

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OSC LMU Open Science Center FORRT

About this workbook

Welcome! This workbook serves as a blueprint to plan your "teaching event" on an Open Research topic of your choice. This event could be a hands-on workshop, lecture, seminar, course, lecture series or similar. Throughout this workbook we use "event" and "workshop" interchangeably.

The workbook contains sections dedicated to completing the exercises from the corresponding workshops from the Open Science Summer School 2026, see here for the slides and materials on OSF: https://osf.io/ay8qk/files/osfstorage and the **LMU OSC Website for the most up-to-date materials**: https://lmu-osc.github.io/train-the-trainer-open-research/. It also contains sections to plan your own Open Researcoh event in a step-by-step fashion, using the didactic and pedagogical skills important for teaching and promoting Open Science that were covered during the summer school.

The workbook is designed to:

- **Support** and **structure** your event planning by embedding the teaching and leadership skills acquired during the Open Science Summer School.
- Serve as a **blueprint** to help you **deliver** the event by **outlining** logistical and practical considerations for your Open Science event
- Provide a basis to **give** a **brief presentation** to your **fellow track participants** to share ideas and obtain feedback on your design, implementation, use of didactic and leadership elements and any practical considerations.
- **Provide** additional **resources** for you to explore after the summer school.

What is covered in this workbook		
Workbook section	**Themes and topics covered**	**Links to summer school 2026**
Section 1: Practical exercises	Space to complete the practical exercises from the workshops.	**Day 1 Teaching Open Research:** Session 1 Core didactic principles Session 2: Concept planning Session 3: Creating a positive learning environment
Section 2: My planned event	A sketch of the initial ideas around delivering an event (workshop, lesson, seminar, lecture, course etc.) on an Open Science topic of your choice.	**Day 1 Teaching Open Research:** Session 2: Concept planning
Section 3: Practical considerations	Practical and logistical consideration when organizing an Open Science event.	**Day 1 Teaching Open Research:** Session 2: Content planning for an Open Research event

What is covered in this workbook		
Section 4: Structuring the event	Design the different phases of the event according to the ARIPE+ scheme, create a preliminary outline for your event including learning goals, teaching activities, assessment methods, feedback rounds etc.	**Day 1 Teaching Open Research:** Session 1: Core didactic principles Session 2: Content planning for an Open Research event
Section 5: Creating a positive learning environment	Generating and integrating concrete elements to foster a positive learning environment and to facilitate the learning process for a better learning outcome.	**Day 1 Teaching Open Research:** Session 3: Creating a positive learning environment
Section 6: Impact	Guidance and exercises to reflect on measuring success and impact of an event	**Day 1 Teaching Open Research** **Day 2 Leadership**
Section 7: Self leadership	Identifying leadership values and your social location	**Day 2 leadership:** Session 1: Skills, values, culture Session 2: Challenges
Section 8: Challenges and strategies	Identifying Open Science challenges, sphere of influence and the 5A framework for navigating challenges in Open Science	**Day 2 Leadership:** Session 2: Challenges Session 3: Strategies
Section 9: Summary and blueprint	A one-page summary sheet with key information for planning a workshop	**Day 1 Teaching Open Research** **Day 2 Leadership**
Presentations	Guidance questions for end of Track 2 group presentations	**Day 2 Leadership:** Session 4: Design your own Open Science workshop/event Session 5: Presentations, Q&A and wrap up
Buddy system and next actions	A place for setting up actions for after the summer school and an accountability buddy system	**Day 1 Teaching Open Research** **Day 2 Leadership**
Resources	A selection of additional resources related to pedagogy and leadership	Post summer school

How to use this workbook and practicalities

- Whenever you see this ✍️ sign, you are encouraged to write down your concrete ideas about the event that you are planning.
- **Complete section by section.** Start by working your way through each section **in a chronological order**. Collect your thoughts on different practical, didactic and leadership elements of designing the event. Each section provides guiding questions to help you formulate your ideas and provides you with prompts and text boxes to add your thoughts.
- **It is normal to go back and forth between sections.** Fill in as much as you can for each section and subsection but note that there will be aspects of the event that, at this moment in time, you are unable to answer. This is totally fine, come back to it later when you have acquired new skills and a better idea for a specific element.
- At the end, you will be asked to generate a **complete Blueprint for your Open Research event**. This workbook therefore serves as a **basis** for you to convert your plans into a **real-world Open Research teaching event**.
- The most **up-to-date training materials** relating to teaching and leadership in Open Science can be found here: https://lmu-osc.github.io/train-the-trainer-open-research/

What we expect by the end of the summer school

By the end of the two instructor training days of the summer school, we expect you to have filled out as much as you can for each section. By the end of the Day 2, your task is to collect all of your thoughts and

1. **Create** a brief **1-2 minute presentation in elevator-pitch-style**[1] for your peers about your planned Open Research event, see the **Presentations** tab for more information. You do *not* need to create slides.
2. **Create a complete Blueprint** of your Open Research event in the **dedicated section** at the end of this workbook. You can then use this blueprint to put your skills and thoughts into practice and start with the organization of the event, the creation of slides and handouts, the recruitment of interested learners etc. and make your plans come to life!

Support

Please do not feel like you have to fill in all the sections by yourself. **At any point in time, you can ask for support from the instructors or your peers.** Also check back with the materials from the workshops you had on Teaching Open Science and Leading in Open Science (e.g. https://lmu-osc.github.io/train-the-trainer-open-research/).

[1] An **elevator-pitch** here refers to a short, oral description of your teaching plans in 1-2 minutes (max) so that listeners can get an overview of the concept in a short amount of time (e.g., imagine being in an elevator and trying to explain your teaching plans to the other people in the elevator).

Section 1: Practical exercises

Aim of this section: This section contains the practical exercises from the workshops and the space for you to complete them. The exercises are sorted chronologically by session, each in a separate tab:

- Workshop 1: Core didactic principles for teaching Open Research
- Workshop 2: Concept planning for your Open Research event
- Workshop 3: Creating a positive learning environment

Exercise A1: What does being an expert *mean*?

***Your task**: Think about something that you are an expert in. How does your **experience with a topic differ** when you are an expert compared to when you are not an expert? Write down your thoughts in the space below.*

Exercise duration: 3 minutes.
Modality: individual work



Answer

Exercise A2: Sketching mental models

***Your task**:*

1. *Work with your neighbor.*
2. *Pick a topic from open research (different from the open access example shown below).*
3. ***Sketch out** the mental model of a novice in comparison to a competent practitioner and/or expert. **Provide at least two concrete examples** of how the organization of knowledge differs among these types of learners in the table below.*

Exercise duration: 7 minutes
Modality: work in pairs



A model of skills acquisition for open research:			
	Novice	***Competent Practitioner***	***Expert***
Example open research topic: Open Access	A novice learner in an Open Access workshop might never have heard of the Green Open Access model, and therefore may have no understanding of how it affects both the authors of academic papers as well as the readers of papers.	A competent practitioner in the context of an Open Access workshop might be able to check the funder's requirements, publish papers Open Access and use open licences like Creative Commons licences. What they may not know are the in-depth differences between Gold, Green and Diamond OA and the legal subtleties of copyright and all the different licences.	An expert publishes perhaps strategically across gold, green and diamond open access routes. Selects and applies different Creative Commons licences based on reuse goals. An expert trains others in Open Access practices and institutional policy. Consults on unusual situations, e.g., checks embargo policies and copyright, recommends alternative journals, adapts and applies the knowledge and skills flexibly depending on the situation.

A model of skills acquisition for open research:			
[Open research topic]	*Type your answer here.*	*Type your answer here.*	*Type your answer here.*

Exercise A3: What helps you organize your mental model?

***Your task**:*

1. ***Think** about something that you are **currently learning or learned how to do.** What helps you with **organizing** your knowledge, beliefs, prior skills, etc. in your mental model? Think back about things that you encountered in workshops, or even things you have seen during this session.*
2. ***Write down** thoughts for yourself (2 mins) in the space below. Then discuss with your neighbor (2 mins). We will then discuss in the larger group.*

Exercise duration: 6 minutes.
Modality: work in pairs



Answer

Exercise A4: Matching the learning objective with an assessment type

***Your task**:*

1. ***Match** the learning objective with a fitting assessment type from the table below.*
2. ***Reflect** why the assessment type would fit a particular learning objective.*
3. *Optional: **Think** of 1-2 teaching activities that would **align with the learning objective and assessment type**.*

Exercise duration: 8 minutes
Modality: work in pairs

Learning objective	Assessment type
A: *Create* a reproducible research pipeline	1: Hand in a brief essay on Green open access along with two ethical benefits and two challenges
B: *Apply* FAIR data principles to a dataset	2: Generate a GitHub project and add project documentation (README)
C: *Analyze* reproducibility issues in published studies	3: Create a metadata record that is machine-readable
D: *Understand* ethical implications of open access	4: Write a critical review of the methods section of an open access paper

✍️
Answer:

A: ____
B: ____
C: ____
D: ____

✍️

Reflection thoughts:

Reflection thoughts:

Bonus Exercise A5: Designing assessment tasks and success metrics

***Your task**: You are tasked to design a course module on Open Research practices and would like to include a workshop on **open access publishing**. In pairs, **design one assessment task** and **define one observable metric** of successfully achieving the learning objective for each learning domain in the table below.*

Exercise duration: 10 minutes
Modality: work in pairs



Learning objective	***Assessment task*** *(e.g. checklist, scoring rubric etc.)*	***Success metric(s)*** *(observable metric of successfully achieving the learning objective)*	***Notes***
Cognitive domain: Learners will be able to *compare* different open access publishing models, e.g., Gold, Green and Diamond Open Access and critically assess their advantages and limitations.			
Affective domain: Learners will *critically reflect* on the benefits and challenges of open access publishing and *demonstrate openness* toward differing perspectives on accessibility and publication costs.			
Optional: **Psychomotor domain**: Learners will *accurately upload* a manuscript to an open access repository and correctly *apply* metadata and an appropriate license.			

Exercise A6: Formulating learning objectives and assessment methods

Your task:

1. ***Navigate** to the following online tutorial: https://lmu-osc.github.io/introduction-to-zotero/.*
2. ***Skim over** the different sections using the navigation menu or the arrows at the bottom of the page to get an idea of the content of the tutorial.*
3. *Using Bloom's taxonomy, **formulate two learning objectives** and **assessment methods** that match the content and the teaching activities of the tutorial. Consider the following: Which level of Bloom's taxonomy are you at and which domain are you targeting?*

Exercise duration: 10 minutes

Modality: work in pairs



Answer

Exercise B1: What do you think are some initial points to consider when you plan an Open Research event*?

*(*event = workshop, lecture, course, seminar, talk etc.)*

***Your task**: Think about initial things to consider when you plan an event on Open Research. What do you have to think about in terms of logistics, practical considerations or other issues?*

Exercise duration: 3 minutes
Modality: individual work



Answer

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Exercise B2: Providing orientation for an R workshop

***Your task**: Imagine that you give a half-day workshop on R to a group of ten learners. In groups, write down concrete examples on how you could provide orientation at the start of the R workshop.*

Exercise duration: 5 minutes
Modality: work in pairs



Expectations	**Milestones to achieve during the workshop**

Exercise B3: What do *you* find motivating or demotivating?

***Your task**:*

1. ***Think back** to open research courses, workshops or seminars you attended in the past. Consider things that a teacher or trainer has **said or done** that you found either motivating or demotivating.*
2. ***Write down** at least two examples for each.*

Exercise duration: 3 minutes
Modality: individual work



Things I found motivating:



Things I found demotivating

Exercise B4: Boosting motivation in your learners

***Your task**: Think back to the R workshop you planned earlier for your group of learners.*

1. *What are **two concrete activities** where you could actively **boost motivation** in your learners?*
2. *What could **two R-specific factors** be that could **demotivate** your learners at the workshop?*

Exercise duration: 5 minutes
Modality: work in pairs



Activities to boost motivation in learners	**R-specific factors that could demotivate learners**

Exercise C1: What is a *positive* learning environment?

***Your task**: Write down your thoughts and bullet points about the concept of what a **positive** learning environment means to you.*

Exercise duration: 5 minutes
Modality: individual work



Answer

Exercise C2: Practicing your active listening skills and observing body language

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***Your task**: Work in pairs of three. One of you takes the role as the "learner", one as the "instructor" practicing active listening and one as the "observer" observing the body language of the instructor. The learner talks for approx. 2 minutes about one of the three question prompts below. The instructor applies active listening skills. Afterwards, debrief: how did the instructor feel? How did the learner feel? What did the observer notice? Take 4 minutes for the debrief.*

Question prompts:

- *How did you first hear about Open Research practices or first become involved in them?*
- *What does Open Research mean to you and your research work?*
- *Do you already have an Open Research topic in mind you would like to teach about? What would it be and why?*

Exercise duration: 6 minutes
Modality: work in pairs of three

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Reflections and observations

Bonus Exercise C3: Examining introductory activities and the effect on learners



Your task:

1. *Work in pairs. For two minutes, collect introductory activities that you use in your teaching on Open Research or saw in other Open Research training you attended and describe what effect you think they had on you or the learners (2 minutes)*
2. *Discuss your thoughts with your neighbor (2 minutes)*

Exercise duration: 4-6 minutes
Modality: work in pairs



Introductory activities for Open Research events and their potential effects on learners

Exercise C4: Challenges to a positive learning environment

Your task: Think about potential **challenges to a positive learning environment** during an **Open Research training event**, e.g., in terms of format, modality, level of experience, audience group size, asynchronous work, technical set-up.

Exercise duration: 5 minutes
Modality: work in pairs



Answer

Bonus Exercise C5: How language affects the learning environment

Your task: In this exercise, we will look at **how language choices** in Open Research training materials **affects** the learning environment.

1. We will analyze presenter notes from an imaginary workshop. The goal is to **identify wording** that may unintentionally exclude learners, make assumptions, or create barriers to participating.
2. Next, **edit the presenter notes** using inclusive language while keeping the overall message the same.
3. After revising the notes, **discuss**:
    a. What changes did you make?
    b. How and why do these changes support a more inclusive learning environment?
    c. Which assumptions were present in the original version?

Exercise duration: 10 minutes

Presenter notes: *Hello guys, and welcome to today's Open Science workshop. I don't have a microphone, but I am sure everyone can hear me well enough. We will be looking at how practices like FAIR data, preprints, and repositories can support more transparent research. You probably already know what those terms mean, so I'll only give a quick overview. If English is your first language, you'll likely find today's session easy to follow. We'll use examples from biomedical research because the same ideas apply everywhere. Of course, you'll want to share your research data in a repository, that's the right way to do it. Sharing your data is a piece of cake once you've done it a few times.*



Revised version

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Reflection questions:

1. **Which assumptions and wordings that excluded learners were present in the original version?**

2. **What changes did you make?**

3. **How and why do these changes support a more inclusive learning environment?**

Section 2: My planned Open Research event (aka workshop, lesson, seminar, course…)

Aim of this section: To briefly sketch an event on an Open Research topic of your choice. The event could be an individual workshop with practical elements, a seminar embedded in a course, a lecture, multiple sessions or even a course.

2.1. Your planned Open Research event

***Your task**: In a few sentences, state what you had in mind for your Open Research event. For example, you could describe the topic you had in mind, what kind of event you would like to do (workshop, lecture, course, seminar..), what content you would like to roughly include, who your audience would be, in which modality you would like to teach in (hybrid, in-person, virtual) and what you are trying to achieve with your event.*

Tip: here you could add and build upon what you had written for your application to this Track.



My planned event on Open Research (rough answer):

Section 3: Practical considerations for your Open Research event

Aim of this section: To think about the concrete framework of your event and the practical considerations when organizing the event.

3.1. Practical considerations

Your task: *Given your chosen Open Research topic, think carefully about some of the practicalities around the event. Use the guiding questions to collect ideas and considerations for your specific event, as well as potential obstacles or difficulties you may run into. Be as specific as you can, e.g., instead of "My target audience are students", consider: "My target audience are first-year MSc students from X and Y study program. Ideally, they have no prior knowledge on topic X, but bring beginner skills on topic Y".*

This list is not exhaustive, please feel free to add depending on the event you are planning.

***Connected workshop**: "Content planning for an Open Research event"*



Practical elements	Guiding question	Your event	Things to consider
Target audience	*Given the topic, what is my intended target audience?*		
Expected background knowledge of audience	*What experience with the topic do my learners bring?*		
Prerequisites	*What will my learners need to bring in order to participate? E.g., basic programming skills, understanding of reproducibility issues etc.*		
Logistics	*Given the target audience, what is a suitable location for*		

	this event?		
Working conditions	*How much time do I have? What is the context of this event?*		
Timeframe	*How long does the event last? When do I deliver it?*		
Room booking	*How can I book a room? Who do I contact?*		
Administrative procedures	*Who do I have to consult with before organizing the event? Who can support me in the organization?*		
Modality	*Is this event suited as a hybrid event? Or in-person/online only?*		
Equipment and resources	*What equipment and materials do I need for the event?*		
Advertisement and signing up for the event	*How can I advertise my event among my target audience? How do participants sign up for the event*		
Support	*Do I need additional support before/during the event? Do I need additional instructors? Do I need technical support?*		
Accessibility and language of event	*Do my learners have any special requirements for participating? What is the technical set up with which they participate (e.g., operating system) Do*		

	I know my audience?		
Post event procedures	*Are there things I need to follow up with participants?*		

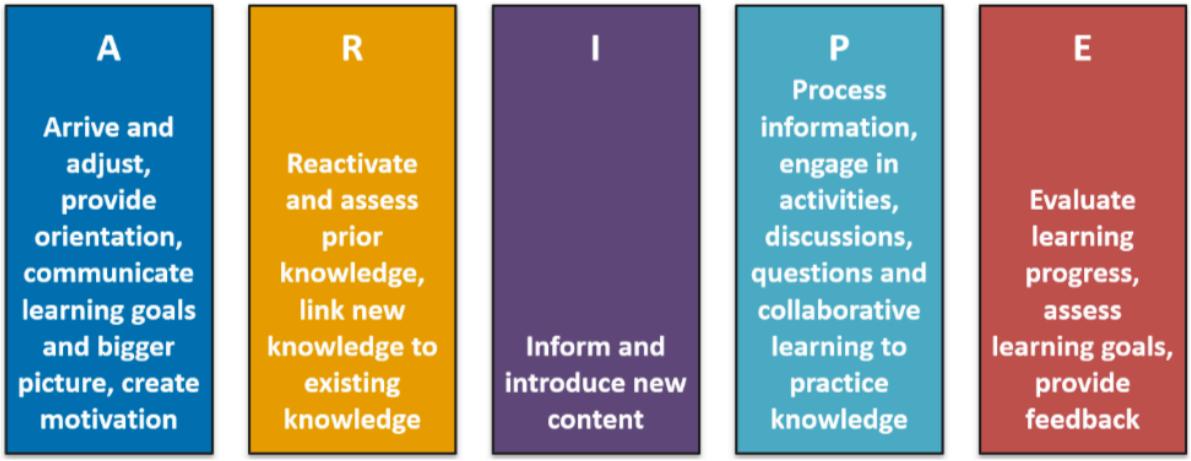
Section 4: Structuring your Open Research event

Aim of this section: In this section, you will first map out what journey you are planning to take your learners on, and what you would like for them to get out of the event at the end. You will then think more concretely about different sections and elements of the event. You will move through the different stages of the ARIPE+ scheme and design elements for the 'arrive' and 'adjust' phase, the 'reactivation' phase, the 'informing' phase, the 'processing' phase and the 'evaluation' phase. You will be asked to think about concrete orientation activities, overarching learning objectives, motivation strategies as well as a first outline of your event with sections, subsections and corresponding learning objectives and teaching activities.

***Connected workshop**: "Content planning for an Open Research event".*

Theoretical framework for this section

In the next part of this section, you will move onto sketching out the different phases of the ARIPE-scheme (Städeli et al., 2013), which is as follows:



4.1. ARIPE - Arrive and Adjust phase

Aim of this phase: *Provide orientation at the start and at the end, outline the journey and the bigger picture, communicate learning goals and create and foster motivation in your learners.*

4.1.1. Provide orientation at the start and the end of the event

Your task: *Thinking about your planned event, map out what equipment and materials you would need, what modality the event should take place in, what could unite your learners and which goal they could be collectively working towards. Also add milestones or deadlines as well as overall expectations you have in your learners.*



	For my event, this corresponds to:	**Corresponding activity (if applicable)**
Equipment needed	*Example: each learner will need their own laptop*	
Materials needed		
Common goals and shared interests among your learners		*Example activity: Make pairs at the beginning of the event and ask learners to discuss what brings them to your workshop.*
Milestones and important dates		
Expectations	*Example: Learners are expected to come on time, they are expected to bring their laptops, they are expected to complete the assignments …*	

4.1.2. Journey and the bigger picture

Your task: *Thinking about your planned event, lay out the journey you are taking your learners on and the bigger picture and vision of the event. Where are you taking your audience? Questions to consider for this section:*

- *What is the journey you are taking your learners on?*
- *What are broader goals for the event?*



The journey I am taking my learners on is:
Example: "Today's workshop helps you move from using open research practices yourself to learning how to teach these practices to the next generation of researchers using evidence-based methods."



The bigger picture for the event is:
Example: "This event provides you with critical skills that will be fundamental for upcoming session on X, Y topic. It fits well within this context because … At the end of today, you will be able to …"

4.1.3. Clearly communicate the overarching learning objectives

Your task: *Thinking about your planned event, state the overarching learning goals for the event and more specific learning objectives for each section of your event. Provide an outlook on how you are planning to achieve these learning objectives with your audience.*



The broader learning objectives according to Bloom's taxonomy for my event are:

(Tentative) Overarching sections of the event	Learning objectives(s) according to Bloom's taxonomy	How to achieve the learning objective (including how this can be measured, if applicable)

4.1.4. Enhancing motivation in your learners

Your task: *Thinking about your planned event, write down concrete strategies and activities of enhancing motivation in line with the lessons of fostering motivation we explored during the workshop.*



Lesson	Activity	Notes
Explore why the topic matters		
Establish an early feeling of success		
Invite participation from learners		
Encourage learners to learn from each other		

Acknowledge and integrate confusion		
Praise effort and improvement		
Embrace mistakes as part of the learning process		

4.2. ARIPE - Reactivate

Aim of this phase: *To reactivate and assess prior knowledge in your learners, and set the foundation to linking new content to existing content in line with the framework of constructivism.*

4.2.1. Activating prior knowledge

Your task: *Thinking about the concrete topic and different subtopics for your event, what are specific methods that you could use to explore and activate prior knowledge? Which methods do you see yourself integrating into your teaching? What ideas do you have?*

Depending on the teaching context, some examples could be: Pre-event surveys, brainstorming with learners, checking for error patterns, making explicit links between content from the current session and the previous session, using analogies…

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Topic	**Methods to explore and activate prior knowledge**	**Notes**

4.3. ARIPE - Inform

Aim of this phase: *To introduce new content to your learners and to maximize the chances of a successful learning process.*

4.3.1. Outline

Your task: *Thinking about your planned event, what are the topics you would like to introduce to your learners? Map out a brief outline of the content of the event, including subthemes and subtopics.*



The (tentative) outline for my event is:

Section	Subsection	Learning objectives	Notes

4.4. ARIPE - Process

Aim of this phase: *To give learners the opportunity to process the new information through specific activities, discussions, collaborative learning etc.*

4.4.1. Teaching activities and exercises

Your task: *Thinking about your planned event, design teaching activities, practical exercises or other elements designed for consolidating and processing the new information.*



The sections and corresponding subsections, the (tentative) teaching activities matching my learning goals are:

Section	Subsections	Teaching activity	Notes

4.5. ARIP**E** - Evaluate

Aim of this phase: *To explore the learning progress of learners, if the learning goals have been reached, to give feedback to your learners and to implement assessments in line with your learning goals and teaching activities.*

Your task: *Thinking about your planned workshop, think about how feedback could be conveyed to your learners and what you would like to specifically focus on as the instructor. Next, design activities aimed at wrapping up the event and communicating any assignments post-events.*

4.5.1. Providing feedback to learners to enhance learning



As an instructor, what elements of conveying feedback do you find important? What would you like to focus on when giving feedback to your learners?

4.5.2. Design wrapping up activities



Section/Subsection	Wrapping up activity	Purpose	Notes

Section 5: Creating a positive learning environment

Aim of this section: To explore different elements of a positive and supporting learning environment that maximizes the learning success for your learners.

***Connected workshop**: "Creating a positive learning environment"*

5.1. Verbal strategies

***Your task**: Which verbal strategies are you planning to implement during your Open Research event to foster a positive learning environment? Also consider issues such as language barriers and cultural differences.*



Verbal strategy?	Good moment to implement?	Additional considerations?

5.2. Non-verbal strategies and body language

***Your task**: Which non-verbal strategies are you planning to implement during your Open Research event to promote a positive learning environment? How will you use body language during your teaching? Also consider issues such as language barriers and cultural differences.*



Non-verbal strategy/ body language elements	Good moment to implement?	Additional considerations?

5.3. Interaction norms

***Your task**:*

1. *Think about potential interaction situations in your event. For instance, will there be group work, or large group discussions?*
2. *Next, think about rules or a "code of conduct" for your event and what you are trying to achieve with them*



Interaction rule	Effect on group, learners, environment …	Notes

5.4. Challenges to the learning environment

***Your task**: Think about what potential challenges could arise during your event. How would you solve them? (e.g., teaching format, modality, experience level, group size, set-up..)*



Challenges	Mitigation strategies	Notes

Section 6: Evaluation of success and impact

***Aim of this section**:* To start your thinking process about how you would evaluate whether the workshop was a success in terms of reaching the learning objectives, if learning was a success for your learners, what they took away from the workshop and what they thought about it more broadly. This was not explicitly covered during the workshops, but for you to keep improving your Open Research events, this is a critical component of the design process after the delivery.

6.1. Brainstorming evaluation methods

***Your task:** To collect methods to evaluate your event in terms of content, structure, learning success, learning objectives etc. Outline which activities you could already synchronously implement during the workshop (for example, a brief quiz at the end) and which you could implement asynchronously after the event (e.g., follow-up surveys..)*

	Evaluation method/tool	**Practical considerations**
During the event		
After the event (short-term/long-term)		

6.2. How would you evaluate the impact of your event?

***Your task:** Let us organize these evaluation methods in a more systematic manner. Skim the example and the corresponding outcomes, how you as the instructor would know that the outcome has been achieved, through which method you would achieve it and which concrete steps you would have to take for it. Next, come up with a similar framework for your own Open Research event.*

Framework for evaluating the impact of your Open Research event				
Event/activity What is the nature of the event/activity?	**Outcome** What do I hope will have changed as a result of the event/activity?	**Indicator** What will show this change has occurred?	**Method** How can I collect evidence of change? *(tools and procedures)*	**Action** What will I do with the findings?
Example: A one-hour workshop about how to do a preregistration	Example: Learners will be able to: 1: Identify the key components of a preregistration 2. Describe the differences between preregistration and registered reports 3. Practice improving a component of a preregistration	Example: Increased awareness of practical elements that make up a preregistration	Examples: Compare pre and post workshop survey questions A short quiz Successful completion of a mock preregistration	Example: Share progress learners have made in a short report

6.3. Resources

Some resources for further reading

National Co-ordinating Centre for Public Engagement guide to evaluating public engagement events/activities https://www.publicengagement.ac.uk/evaluation

Ihle, M., & Schönbrodt, F. (2023). LMU Open Science Center Impact Report 2017 – 2023 (Version 1.0). Zenodo. https://doi.org/10.5281/zenodo.10285395
(See Annex II - Feedback report: Hybrid Open Science Summer School, 11.-15.09.2023)

Sufi, S., Nenadic, A., Silva, R., Duckles, B., Simera, I., de Beyer, J. A., Struthers, C., Nurmikko-Fuller, T., Bellis, L., Miah, W., Wilde, A., Emsley, I., Philippe, O., Balzano, M., Coelho, S., Ford, H., Jones, C., & Higgins, V. (2018). Ten simple rules for measuring the impact of workshops. *PLoS computational biology*, *14*(8), e1006191. https://doi.org/10.1371/journal.pcbi.1006191

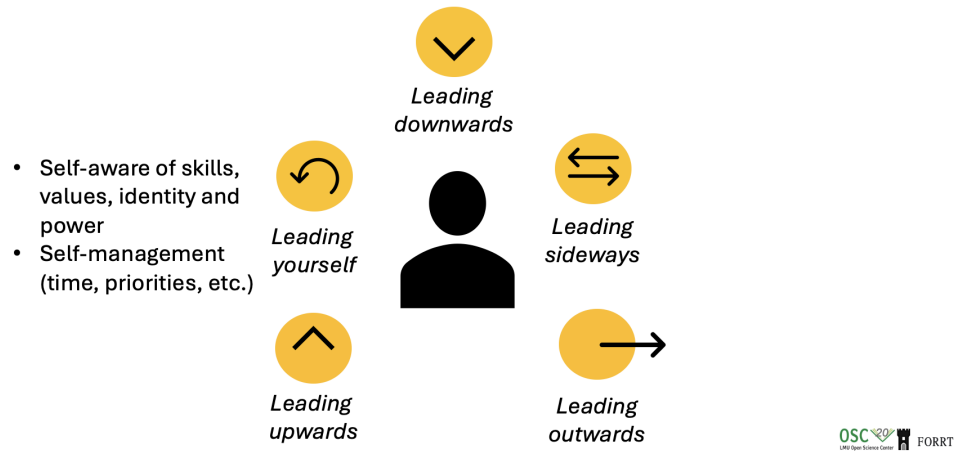
Section 7: Leadership in Open Science

Aim of this section: to practice self-leadership and identify your own leadership values and social location.

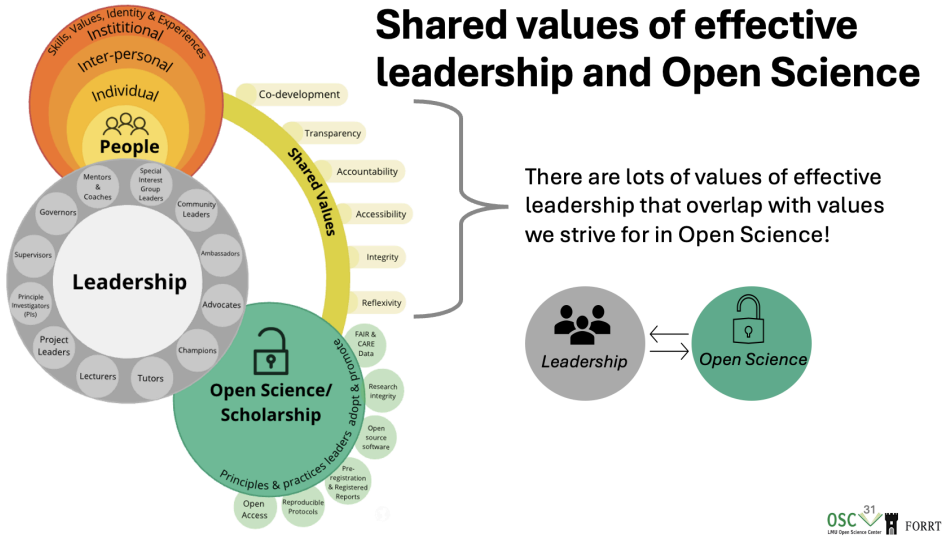
This section references this set of training materials on leadership values, skills and culture: https://osf.io/ay8qk/files/xdjbr

Key theory and concepts:

- Leadership as multidirectional.



- The shared values of effective leadership and Open Science



7.1 Leadership values

✍️ Using the leadership values table below and the guiding questions to help you list your three core leadership values. The values table is a non-exhaustive list, feel free to add your own values that resonate more with you!

My three core leadership values are:
Value 1: Value 2: Value 3:

Guiding Questions:

- What is important to me?
- Which values represent me at my best?
- Which values guide me during challenging times?

Leadership values table			
Accuracy	Empowerment	Optimism	Sustainability
Advocacy	Equality	Patience	Teamwork
Agency	Equity	Performance	Timeliness
Ambition	Excellence	Perseverance	Transparency
Belonging	Flexibility	Power	Trust
Care	Growth	Proactiveness	Truth
Clarity	Honesty	Quality	Unity
Collaboration	Humility	Recognition	Utility
Community	Impact	Reflexivity	Vision
Competence	Inclusivity	Reliability	Wisdom
Confidence	Independence	Reputation	
Cooperation	Influence	Resourcefulness	
Courage	Integrity	Respect	
Critical thinking	Joy	Responsibility	
Curiosity	Justice	Rigor	
Discipline	Kindness	Risk-taking	
Diversity	Knowledge	Stability	
Efficiency	Leadership	Stewardship	
Empathy	Openness	Structure	

7.2 My social location

Extension exercise:

✍️ Using the Academic Wheel of Privilege framework, try out the app: https://forrt.org/awop_app/ and consider the reflection questions below. There is space to write notes or reflections from this exercise.

Reflection Questions:

- Which areas do I hold the most privilege?
- Has my level of privilege changed throughout my academic journey?
- Do the people I collaborate with have a similar social location to me?
- What is one way my social location has influenced how I make decisions in academia?
- In what ways can I actively address and mitigate privilege imbalances within research teams, classrooms or collaborations?

Notes

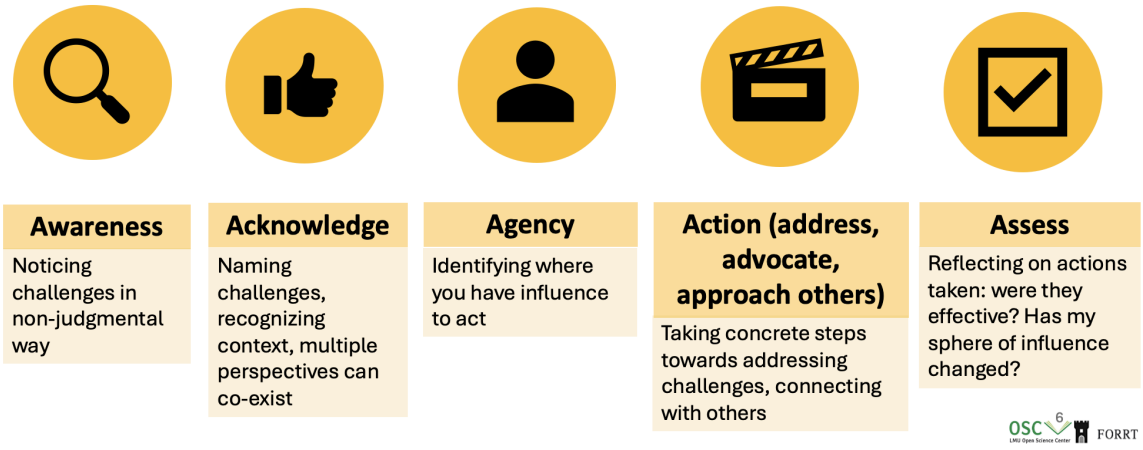
Section 8: Leadership in Open Science: navigating challenges and strategies

Aim of this section: To identify types of challenges in adopting Open Science practices supported by the 5A framework for navigating challenges in Open Science.

This section references this set of training materials on navigating challenges and strategies: https://osf.io/ay8qk/files/vd69u

Key theory and concepts:

- 5A (Awareness, Acknowledge, Agency, Action and Assess) framework for navigating challenges in Open Science.



The five Open Science schools of thought (Fecher & Friesike, 2014)

- *Democratic:* Making knowledge freely available for everyone (e.g. open data, licensing)
- *Pragmatic:* Opening up the process of knowledge creation (e.g. Big Team Science, open code)
- *Infrastructure:* Creating open technical architecture for scientists (e.g. tools, platforms, services)
- *Public:* Making knowledge creation accessible to non-academics (e.g. Science communication, public participation)
- *Measurement:* Developing alternative metrics for success and impact (e.g. altmetrics, authorship)

8.1 Awareness and Acknowledgement of challenges

✍️ Using the space below list your current challenges in Open Science. The idea is to collate the barriers first, before categorizing them. This stage corresponds to stage 1 and 2 of the 5A framework for navigating challenges.

Challenges in leadership in Open Science
Challenge 1

8.2 Identifying agency and sphere of influence

As you begin to categorize the challenges you listed above (8.1), consider the reflection question to help you. This step aligns with step 3 of the 5A framework for navigating challenges.

Note on the four categories:
Generally, we have more control/influence at individual and interpersonal levels to act (i.e. “act, address and advocate” zone) and time and energy should be spent focusing on resolving challenges here. For challenges that fall within the “aware” zone, they may be things that you have part control over or want to address at a later stage.

For barriers that fall outside your control (the two boxes on the right-hand side) you want to note the challenges, and for systemic or institutional level: let them go! At the individual and interpersonal levels: assess at a later stage if these challenges are back within your sphere of influence. Our sphere of influence is dynamic and as we accumulate more lived and work experience and make more connections our capacity to address challenges changes. Barriers that are currently outside our control/influence to address may be possible to act upon in a few months time.

Reflection question:
For a given challenge, am I able to address it by myself or can I partly influence (via my actions and behavior) how the challenge impacts me?

What challenges are in my control or in my sphere of influence?

✍️ Using the challenges you listed above, start to categorize them according to the scale and whether you have control/influence to address the challenges.

Scale of challenge	**Level of control/influence over challenge**	
	Partly within my control/influence	*Outside* my control/influence
	Stay aware 👀	***Acknowledge and let go*** 🚮
Systemic *(e.g. the academic ecosystem)*		
Institutional *(e.g. your institution or organization)*		
	Within my control/influence	*Outside* my control/influence
	Act, address and advocate 📣	***Acknowledge and assess later*** 🔁
Interpersonal *(e.g. your colleagues, team mates, students)*		
Individual *(yourself)*		

Extension:
✍️ For items you have added in the **green zone** (act, address and advocate), set **one thing** you will do **today** towards addressing the challenge (e.g. send email to X).

Green zone challenge: **Today's action:**

Extension:
✍️ For items you have added in the **green zone** (act, address and advocate), identify who you could approach for advice and allyship. Think about what their expertise is and how they could help you.

Identify who is in your network *(e.g. lab members, mentor, departmental champion, special interest group representative, etc.)* *Person:* *Expertise:* *Contact:*

Notes

8.3 Assessing approach to challenges

Extension:

✍️ For the final step in the 5A framework for navigating challenges - assess, you can use the table below to reflect on how you will assess if you have addressed your challenge. Focus here on items you have added in the **green zone** (act, address and advocate) in 8.2. There is a hypothetical example of a challenge outlined in grey.

Challenge What is the challenge?	**Actions** What steps do I need to take to address the challenge?	**Outcomes** What do I hope will have changed as a result of the addressing challenge?	**Indicators** What will show this change has occurred?	**Methods** How can I collect evidence that the challenge has been addressed?
Example: Unsure how best to align ways of working on a new collaborative project I am leading when team members have diversity of expertise	Examples: ● Reflect on what I value in this new project ● Identify what the project ethos is and what my relevant expertise are ● Research existing code of collaboration documents to take inspiration ● Create a draft code of collaboration document for other team members to co-develop ● Send an email to new team members calling a meeting to discuss code of collaboration	Examples: ● The team collaborates well, achieves the projects aims in a timely manner ● Clarity of team member roles ● People's contributions and expertise are valued	Examples: ● I will feel more confident in leading and coordinating a cross-functional team ● Team members are working in a way that aligns with the project ethos	Examples: ● Regular team check ins ● Project milestones reached

8.4 Revisiting your sphere of influence

✍️ Revisiting your actions and sphere of influence after 1-3 months after the workshop is helpful to sustain momentum for the actions you set yourself. It also provides an opportunity for you to

reflect on the process and see how your behavior may have been impacted. Reread the challenges you listed in the sphere of influence table in section 8.2 and consider the reflection questions below.

Reflection questions

- Have I been able to address some of the challenges in the green zone?
- Has my sphere of influence shifted?
- What is one thing you have learnt about yourself from engaging in the sphere of influence exercise?

Notes

Extra resources

Case study series on leadership in Open Science where you can browse challenging scenarios across different Open Science topics and reflect on strategies to help resolve challenges.

- Big Team Science https://zenodo.org/records/22282068
- AI and open code https://zenodo.org/records/22306455
- Cultural awareness https://zenodo.org/records/22308238
- Preregistration https://zenodo.org/records/22307709
- Contributorship https://zenodo.org/records/22307117
- Qualitative methodology https://zenodo.org/records/22308007

Section 9: Blueprint for your Open Research workshop

Bringing it all together!

✍️ Here you can collect your thoughts from all the previous sections to generate a complete overview of your Open Research event. This overview will serve as the basis to transition from the planning phase to the phase of actively designing and delivering your workshop.

<table>
<tr><th colspan="5">Open Research event planning summary sheet</th></tr>
<tr><td colspan="2" rowspan="7">Open Research topic:

Brief description:</td><td rowspan="7">Event logistics and administrative procedures: (e.g., event location, room booking..)</td><td>Date and time</td><td></td></tr>
<tr><td>Event type</td><td></td></tr>
<tr><td>Target audience</td><td></td></tr>
<tr><td>Modality and event language</td><td></td></tr>
<tr><td>Facilitator(s)</td><td></td></tr>
<tr><td>Equipment and resources</td><td></td></tr>
<tr><td>Technical considerations and accessibility</td><td></td></tr>
<tr><td>Broader context and vision</td><td colspan="2"></td><td>Teaching values</td><td></td></tr>
</table>

Open Research event planning summary sheet					
Overarching learning goal(s)				Expectations	
Prior knowledge/ prerequisites				Positive learning environment considerations	
Success criteria				Other	
Event outline					
	Topics covered	Learning objective(s)	Activities/ exercises	Teaching strategies *(activating prior knowledge, motivation strategies, feedback methods, evaluation…)*	Key resources and references
Introduction and orientation					
Main session					
Wrapping up					
Post-event offboarding					
Notes					

Presentations

The aim of this section: Outline your plan for an open science teaching event and get feedback from your peers.

The final part of Track 2 is presenting your work in progress plans for delivering your Open Science workshop/event! You can use information you have written down from the previous sections of this workbook to prepare for your group presentations.

Instructions: Presentations will be elevator-style pitches in small groups of 3-5 people, where you will have 1-2 minutes to share the key points outlined in the box below.

Listeners provide feedback on content and thoughts on potential challenges (max 5 mins) immediately after the presentation, before the next presenter continues with their elevator pitch. Below there is space to note down reflections and questions as you listen to your group members share their presentations.

Note: This is **not** about presentation skills, but about the **content and implementation** of your teaching plan and discussing potential solutions for challenges within the group.

My presentation notes

- What Open Science topic you plan to deliver
- Your intended audience
- Mode of delivery (e.g. hybrid/online/in-person)
- When you plan to deliver
- One concrete didactic tool you are planning to implement
- A challenge you have with planning your workshop
- A challenge that could arise in the future before/during the workshop

Notes

A space for reflections, questions as you listen to your group members share their presentations.

Buddy system and next actions

✍️ To help you maintain momentum after the Summer School, **identify** and **list three actions** you would like to take towards the organization of your Open Science event.

Think SMART (**S**pecific, **M**easurable, **A**chievable, **R**elevant and **T**ime-bound) about your actions!

Next **share** your actions with someone else at the Summer School (i.e. your **accountability buddy**). Agree on a time to check-in on progress of actions.

Setting manageable goals and check-ins makes it less overwhelming and more attainable. An accountability buddy system allows you to mutually support each other in reaching your goals.

Actions I will take
*Action I will take in the coming **days***   •   *Action I will take in the coming **weeks***   •   *Action I will take in the coming **months***   •
Tip: Make a calendar invite with your accountability buddy for the check-in

Additional resources

Additional resources for further reading on the topics of pedagogy, leadership and Open Science

Pedagogy				
Topic(s)	**Resource title**	**Resource type**	**Notes**	**Link/Citation**
Universal Design (for learning) - UDL	The (CAST) UDL Guidelines	A set of guidelines in a variety of formats	Useful resource to consider when building an inclusive learning environment	CAST (2024). CAST Universal Design for Learning Guidelines version 3.0. Retrieved from https://udlguidelines.cast.org
Teaching, active student participation	How to… teach Open Science	Book chapter	A brief synthesis on the benefits of teaching Open Science to students, how Open Science practices can be organically integrated into lessons across disciplines.	Pennington, C. R., Skubera, M., & Pownall, M. (2026). How to... teach Open Science. In Pennington, C. R. & Pownall, M. (Eds), Teaching Open Science. Elgar Publishing.
Higher education teaching	Navigating the pitfalls of teaching open science to undergraduate students.	Preprint	A narrative review of 11 pitfalls/challenges (e.g. technical, making mistakes, time needed) of teaching open science to undergraduate students.	Verheyen, S., & Heyman, T. (2025, October 19). Navigating the pitfalls of teaching open science to undergraduate students. https://doi.org/10.31234/osf.io/qynpx_v1
Field courses, Open Science teaching and online learning	Next-generation field courses: Integrating Open Science and online learning	Journal article	A case study on an ecology field course and how open science practices (e.g. reproducible workflows) were embedded.	Geange, S. R., Von Oppen, J., Strydom, T., Boakye, M., Gauthier, T. L. J., Gya, R., ... & Vandvik, V. (2021). Next-generation field courses: Integrating Open Science and online learning. *Ecology and Evolution*, *11*(8), 3577-3587. https://doi.org/10.1002/ece3.7009

Leadership				
Topic(s)	**Resource title**	**Resource type**	**Notes**	**Link/Citation**
Leadership, research culture	Being a curious leader	Blog post	A personal reflective piece on ways to practice being curious as a leader	Wilson, E. (2026). Being a curious leader. https://www.gla.ac.uk/research/az/inframe/intheframeblog/headline_1275003_en.html
Inclusive academic metrics, values, mentorship	Promoting inclusive metrics of success and impact to dismantle a discriminatory reward system in science	Essay	An essay outlining issues with current academic culture of narrow success metrics and showcasing alternative evaluation model, one built on mentorship, inclusivity and wellbeing.	Davies, S. W., Putnam, H. M., Ainsworth, T., Baum, J. K., Bove, C. B., Crosby, S. C., ... & Bates, A. E. (2021). Promoting inclusive metrics of success and impact to dismantle a discriminatory reward system in science. *PLoS biology*, *19*(6), e3001282. https://doi.org/10.1371/journal.pbio.3001282
Transferable Open Science Skill, employability	How to bolster employability through open science	Preprint/book chapter	An article discussing skills acquired and practiced through engaging with Open Science practices and how some structural reforms are taking place with taking into account Open Science in hiring decisions.	König, L., Gärtner, A., Slack, H., Dhakal, S., Adetula, A., Dougherty, M., & Corral-Frías, N. (2025). How to bolster employability through open science. https://doi.org/10.31219/osf.io/zgfkd_v1
Open Science Champions	How to become an open science champion	Careers article	A short article outlining 5 tips (and many resources) for becoming an Open Science Champion	https://www.chemistryworld.com/careers/how-to-become-an-open-science-champion/4023256.article

Open Science teaching resources
LMU Open Science Center training homepage with links to self-learning catalog, ready to use slide decks on a range of Open Science topics https://www.osc.lmu.de/training/ FORRT (Framework for Open and Reproducible Research Training) lesson plans https://forrt.org/lesson-plans/ and curated resources https://forrt.org/resources/ The Turing Way handbook to reproducible, ethical and collaborative data science. https://book.the-turing-way.org/ UNESCO Open Science toolkit https://www.unesco.org/en/open-science/toolkit?hub=686 Kramer, B.& Bosman, J. (2018, January 14). Rainbow of open science practices. Zenodo. https://doi.org/10.5281/zenodo.1147025 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. https://doi.org/10.1371/journal.pcbi.1010750