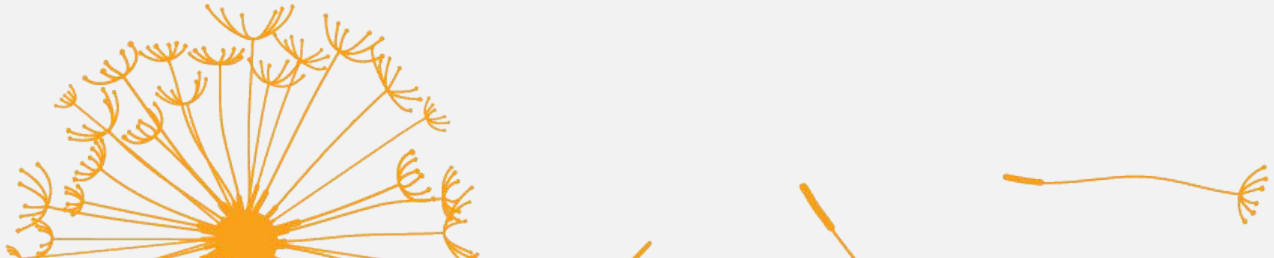
Open Science Trainer Bootcamp

April 23, 2019, Belgrade, Serbia



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Introductions

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What we'll be doing today

- Setting the scene
- Who is your audience?
- Identify their training needs
- Identify learning objectives
- Explore different formats
- Design and evaluate your own mini-training
- Troubleshooting

10.00 – 10.30 Welcome and introductions
10.30 – 10.50 Open science is... and this is what we are going to do today...
10.50 – 11.45 Training examples & practical guidance
11.45 – 12.00 Coffee break
12.00 - 12.30 Openness in training: Open elements in your training; finding open materials
12.30 - 13.00 How to give training: focusing on learning objectives & learning outcomes
13.00 – 14.00 Lunch
14.00 – 16.00 Setting the scene for your training participants and your role as trainer; experience various
training formats; design your mini-training
16.00 – 16.15 Coffee break
16.15 – 18.00 Presentations of the mini-trainings; feedback and evaluation

What is your role as trainer?

Why do you want to give Open Science Training?

Who is your audience?

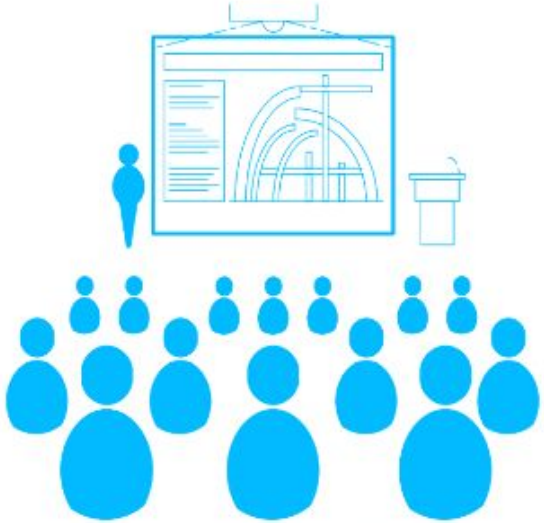
How can you reach them most effectively?

What IS Open Science?

This is not an Open Science Training!

Go to **www.menti.com** and use the code **16 84 68**

eifl KNOWLEDGE WITHOUT BOUNDARIES



Open Science Training

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Training examples & practical guidance (Helene)

Open Science Training Handbook - Open Science Basics

Open Concepts & Principles

Open Access to Published Research Results

Open Licensing & File Formats

Open Research Data & Materials

Open Science Policies

Open Peer Review, Metrics & Evaluation

Reproducible Research & Data Analysis

Open Research Software & Open Source

Open Education Resources

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book.fosteropenscience.eu

Open Science Training Handbook - Open Science Basics

What is it?

Why is it important?

Learning objectives and outcomes to achieve

Key components: Knowledge & skills

Questions, obstacles, & common misconceptions

Further resources

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On Learning and Training

How to

Prepare your workshop
- Theoretical learning strategies
- Different audiences
- Strategies to develop motivation

Execute your workshop
- How to design a course
- How to choose content
- How to start training

& reflect on your workshop
- Aspects to evaluate

Organisational Aspects

- Venue
- Timing & budget
- Equipment & media
- Marketing & advertising strategy
- Registration
- Evaluation

→ Check list

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Example training outlines

24 exercises:

- Format, time needed, topic, learning objectives, description, materials needed, level of prior knowledge, how to adapt

Open Science Café

- Enable low-threshold discussion and dialogue between different stakeholders

CC BY Martine Oudenhoven

www.fosteropenscience.eu/content/organise-your-own-open-science-cafe

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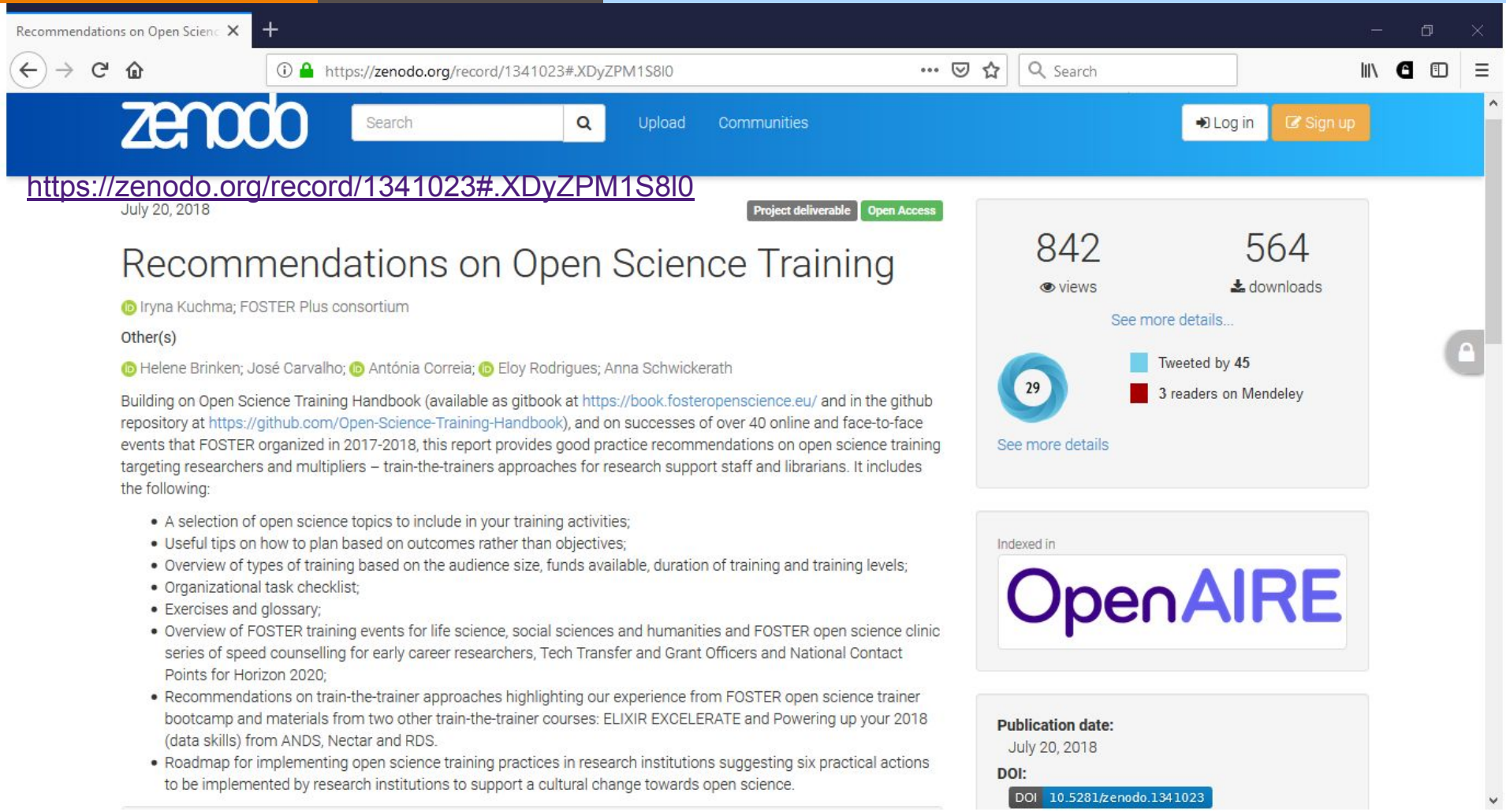

Recommendations on Open Scienc

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July 20, 2018

Project deliverable Open Access

Recommendations on Open Science Training

Iryna Kuchma; FOSTER Plus consortium

Other(s)

Helene Brinken; José Carvalho; Antónia Correia; Eloy Rodrigues; Anna Schwickerath

Building on Open Science Training Handbook (available as gitbook at https://book.fosteropenscience.eu/ and in the github repository at https://github.com/Open-Science-Training-Handbook), and on successes of over 40 online and face-to-face events that FOSTER organized in 2017-2018, this report provides good practice recommendations on open science training targeting researchers and multipliers – train-the-trainers approaches for research support staff and librarians. It includes the following:

- A selection of open science topics to include in your training activities;
- Useful tips on how to plan based on outcomes rather than objectives;
- Overview of types of training based on the audience size, funds available, duration of training and training levels;
- Organizational task checklist;
- Exercises and glossary;
- Overview of FOSTER training events for life science, social sciences and humanities and FOSTER open science clinic series of speed counselling for early career researchers, Tech Transfer and Grant Officers and National Contact Points for Horizon 2020;
- Recommendations on train-the-trainer approaches highlighting our experience from FOSTER open science trainer bootcamp and materials from two other train-the-trainer courses: ELIXIR EXCELERATE and Powering up your 2018 (data skills) from ANDS, Nectar and RDS.
- Roadmap for implementing open science training practices in research institutions suggesting six practical actions to be implemented by research institutions to support a cultural change towards open science.

842 views

564 downloads

See more details...

29

Tweeted by 45

3 readers on Mendeley

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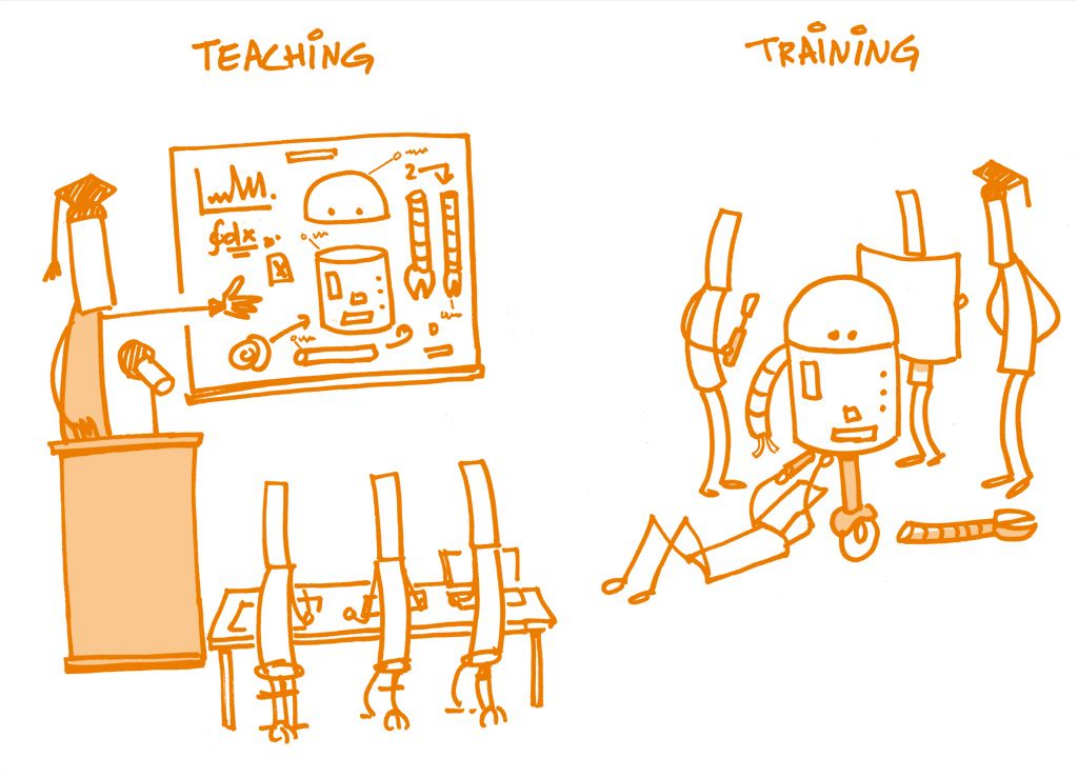
Indexed in

OpenAIRE

Publication date:
July 20, 2018

DOI:
DOI 10.5281/zenodo.1341023

Examples for hands-on & interactive Training



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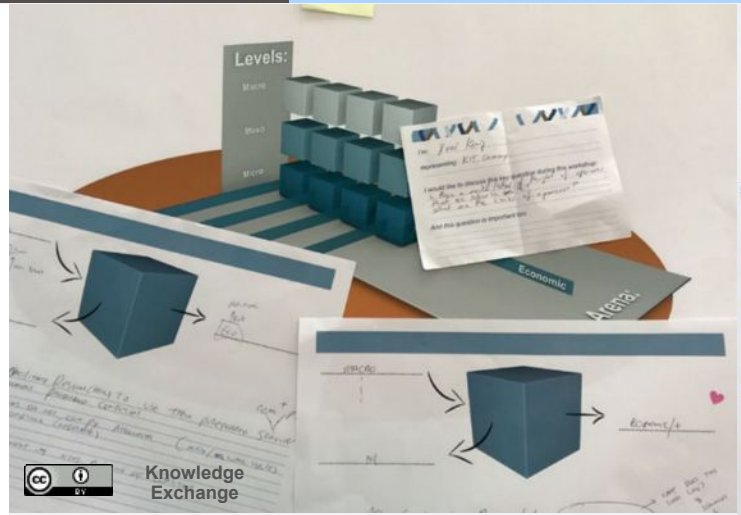
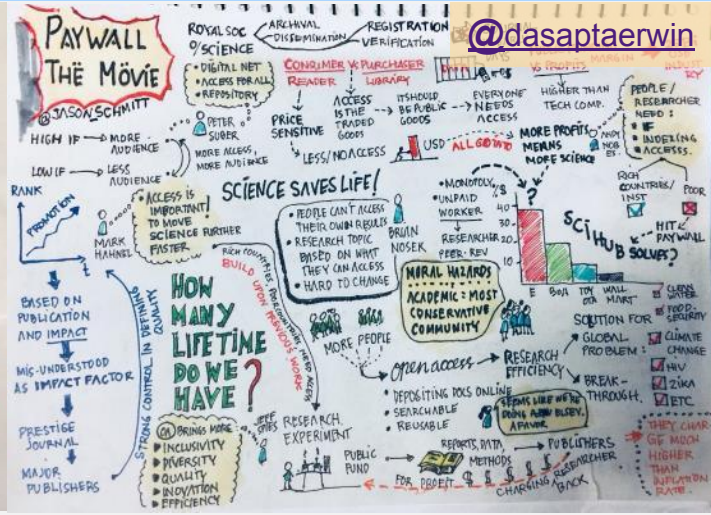
Visualization

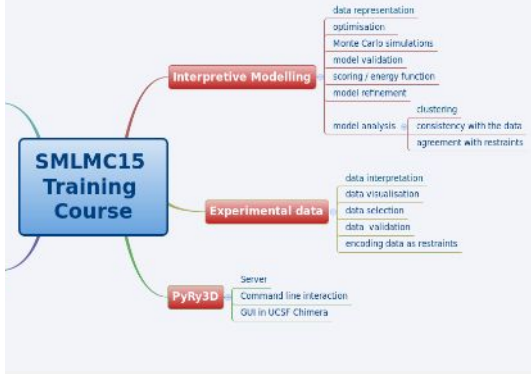




Simplifying difficult concepts

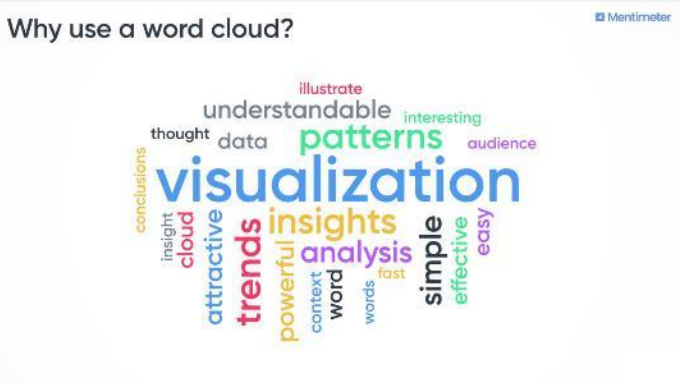
Sketching/graphic novel

Mind maps



Stickers

Word clouds



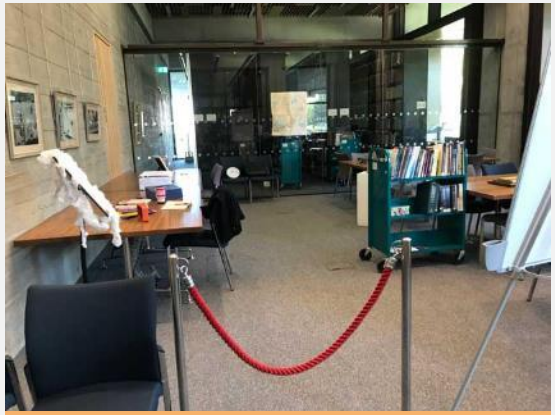
Gamification

McGuinn, Kate and Spikin, Mike (2017) *The Game of Open Access.* ttp://eprints.hud.ac.uk/id/eprint/33874/

Card/board games

Competitions

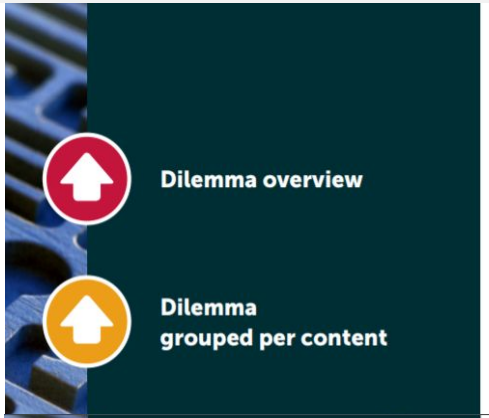
Puzzles

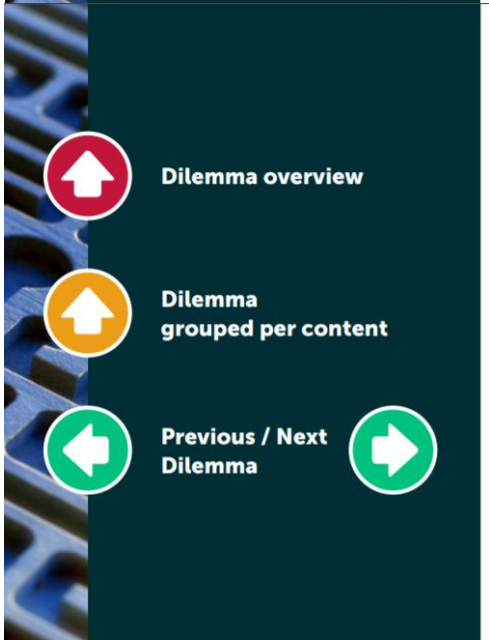


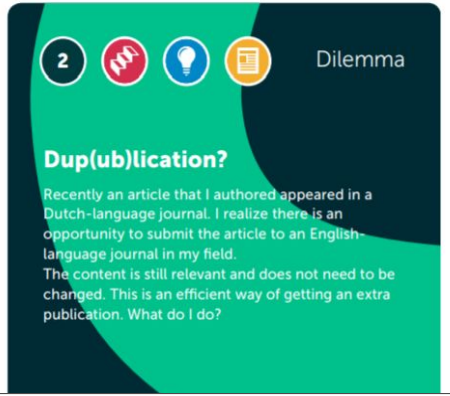
Sundsbø, Katrine. 2019. "**Open Access Escape Room:** The Key to OA Engagement?". *Insights* 32 (1): 8. http://doi.org/10.1629/uksg.459

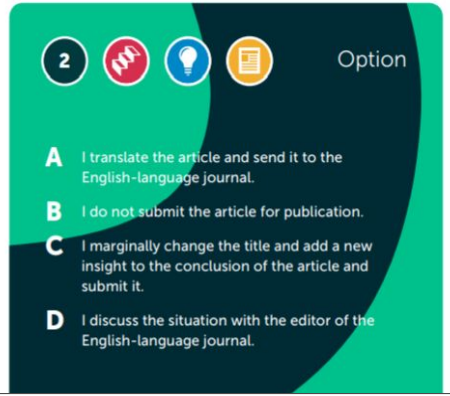
Quizzes

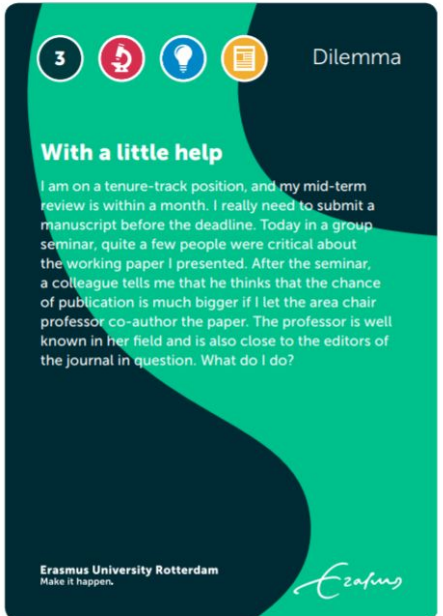
Research Integrity Dilemma Game

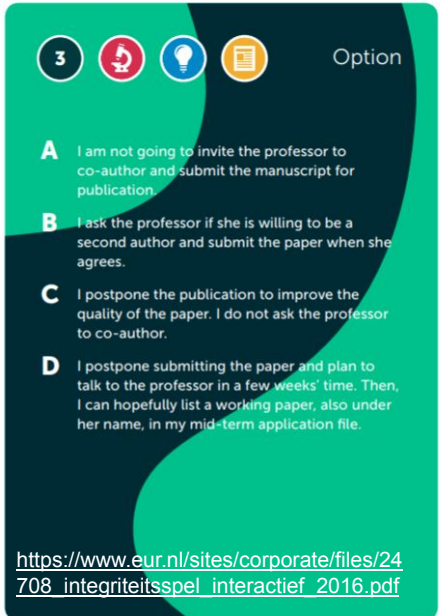






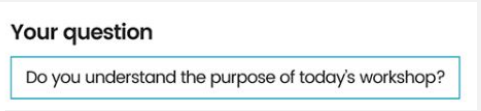






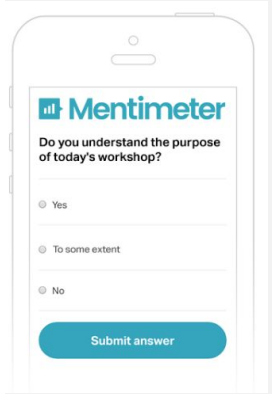
https://www.eur.nl/sites/corporate/files/24708_integriteitsspel_interactief_2016.pdf

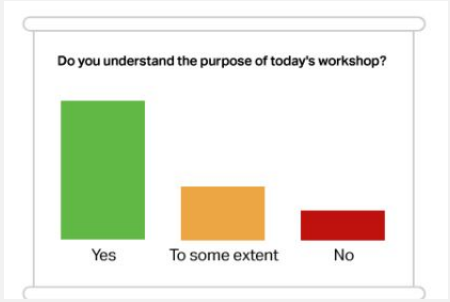
Engagement



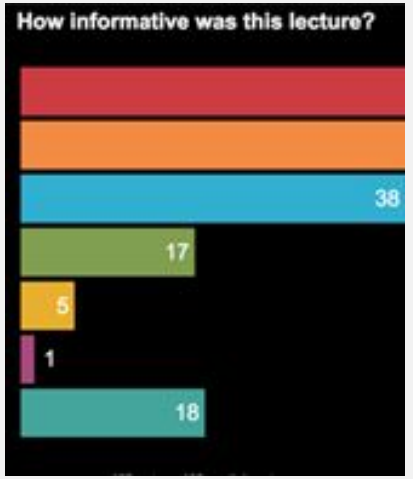
Instant polls

www.mentimeter.com





www.directpoll.com



Playful elements

Rewards & incentives

Certificates

Badges

Networking opportunity

Prices

Coffee

Brown bag lunch

Share your experiences!

What was an element of the best training you attended?

What was an element of the worst training you attended?

What did all of them have in common?

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Open Elements in your training (Gwen)

How to improve the openness of your training

Being open is being inclusive

- Think about how to get a diverse set of participants and speakers to your training;
- Think about how to get the participants to really engage in your training; how you can make your participants feel comfortable;
- Think about how to make exercises interactive and fun; how collaboration with other participants can help to learn too;

Melanie Imming

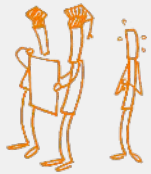
How to improve the openness of your training

Feel free to reuse what is available

Lots of people in the OS community have shared their materials: please use whatever they have used and tested!

Melanie Imming

Reusable Courses

What is Open Science?	Best Practice in Open Research	Open Access Publishing	Open Peer Review	Sharing Preprints
				
Data Protection & Ethics	**Open Source Software & Workflows**	**Managing & Sharing Research Data**	**Open Science & Innovation**	**Open Licensing**

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Open Science Courses

- Answering burning questions of researchers
- Where relevant, discipline specific examples (CRG, GESIS, DARIAH-EU)
- Interactive content (gamification, quizzes)
- Reviewed by community

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Badges

- 5 learning paths
- Effort 2-4 hours
- Complete a set of courses & get a badge

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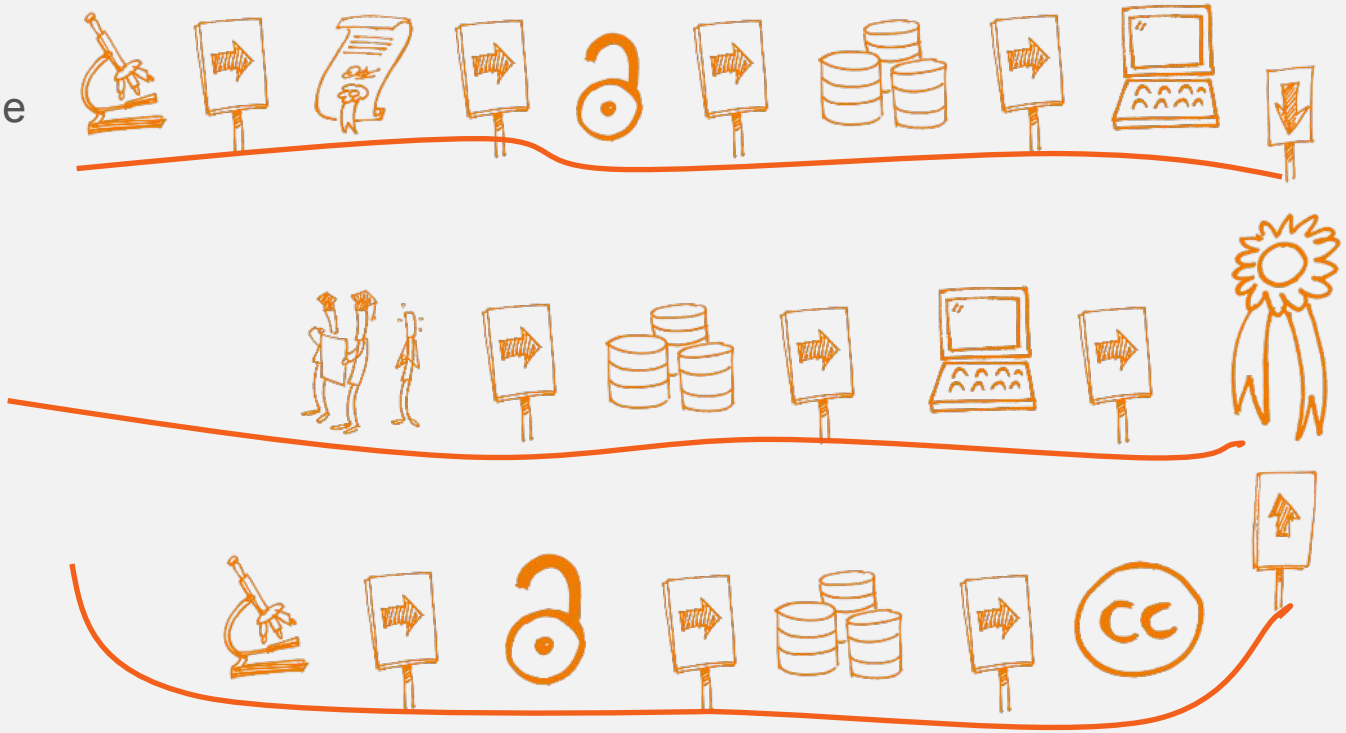
Learning paths

The Reproducible Research Practitioner

The Open Peer Reviewer

The Open Access Author



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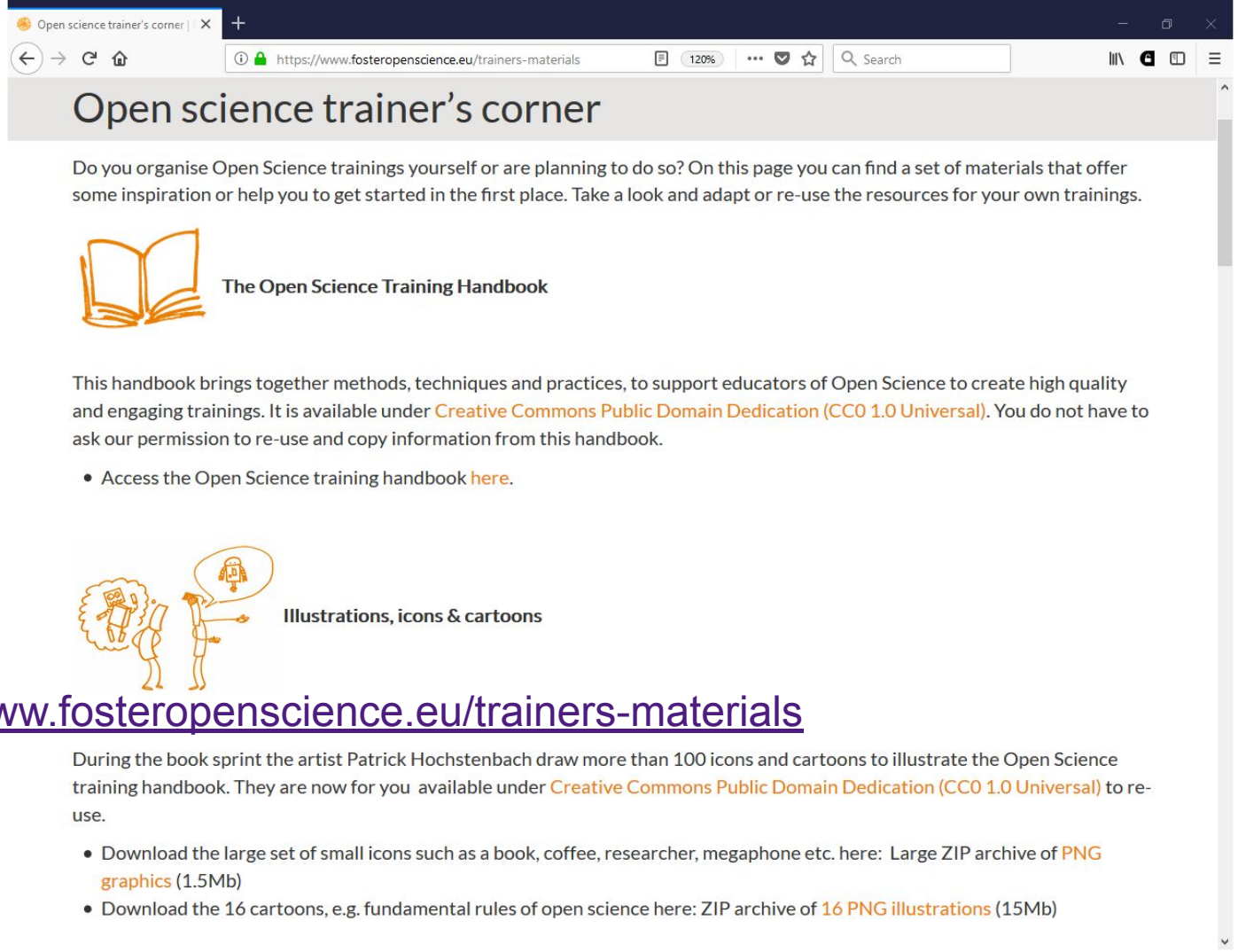

https://www.fosteropenscience.eu/trainers-materials

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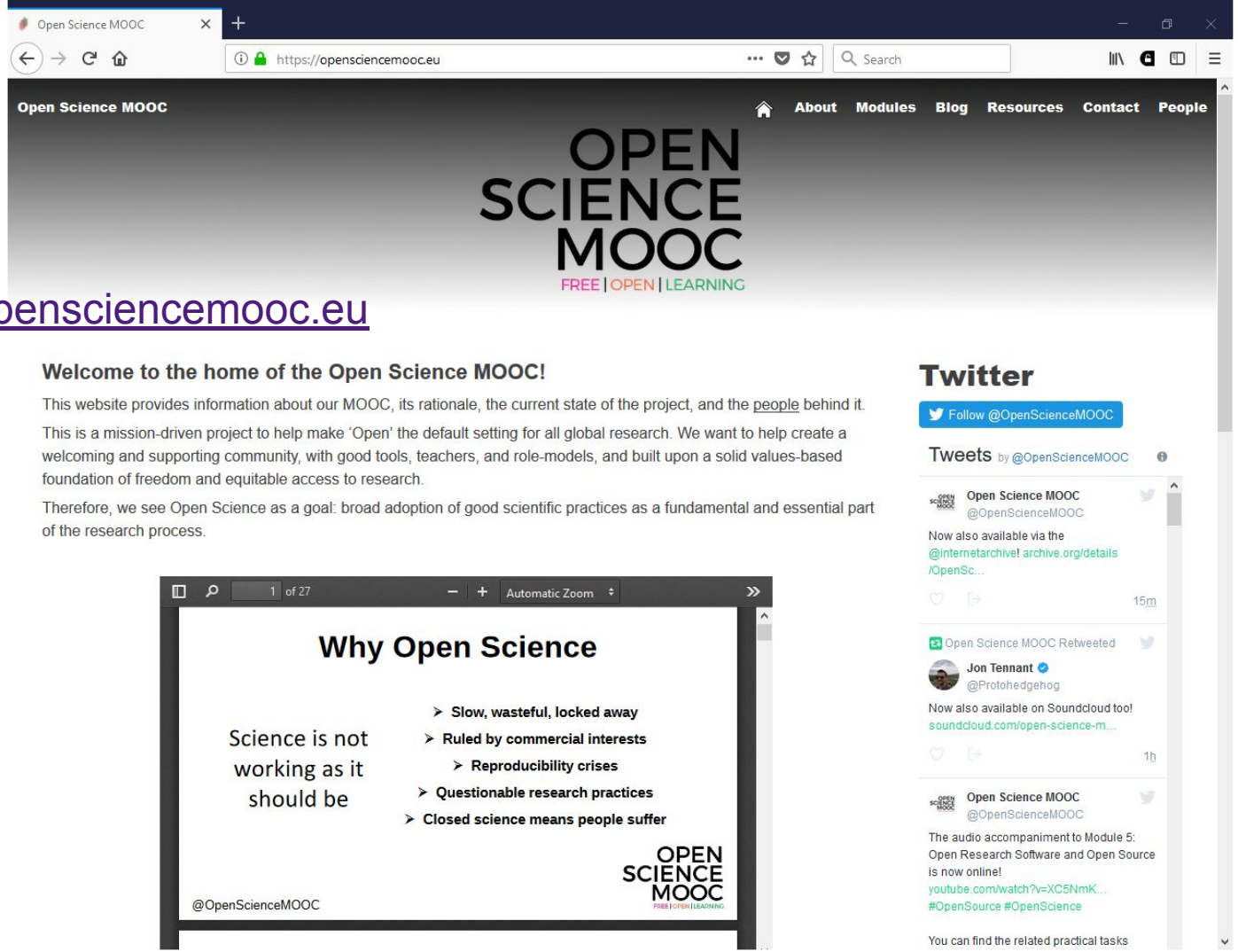
https://opensciencemooc.eu



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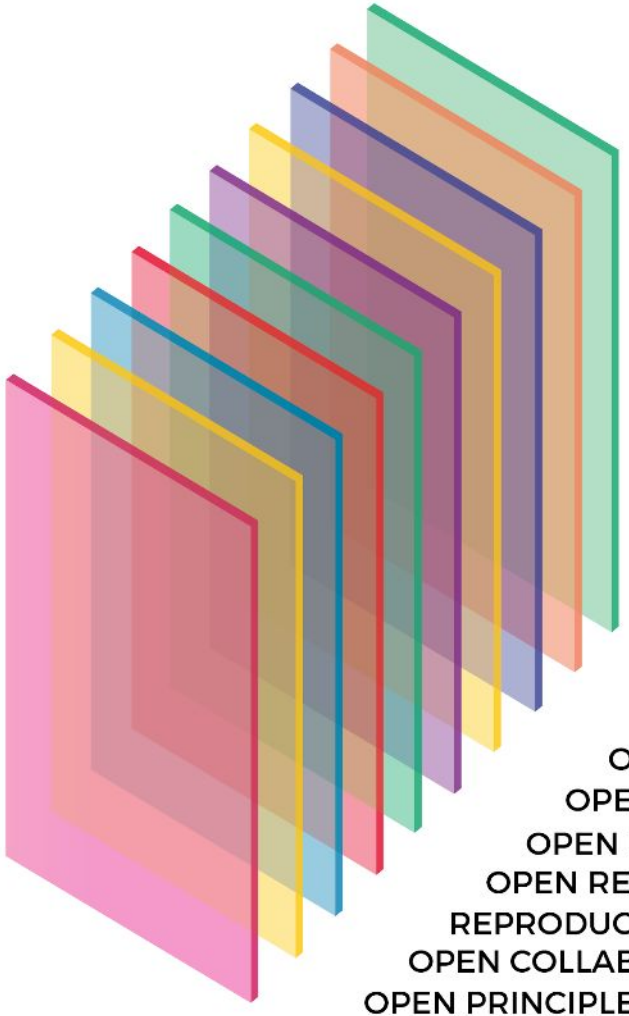

OPEN SCIENCE MOOC

FREE | OPEN | LEARNING

OPEN ADVOCACY
OPEN EDUCATIONAL RESOURCES
PUBLIC ENGAGEMENT WITH SCIENCE
OPEN EVALUATION
OPEN ACCESS TO RESEARCH PAPERS
OPEN RESEARCH SOFTWARE & OPEN SOURCE
OPEN RESEARCH DATA
REPRODUCIBLE RESEARCH & DATA ANALYSIS
OPEN COLLABORATION
OPEN PRINCIPLES

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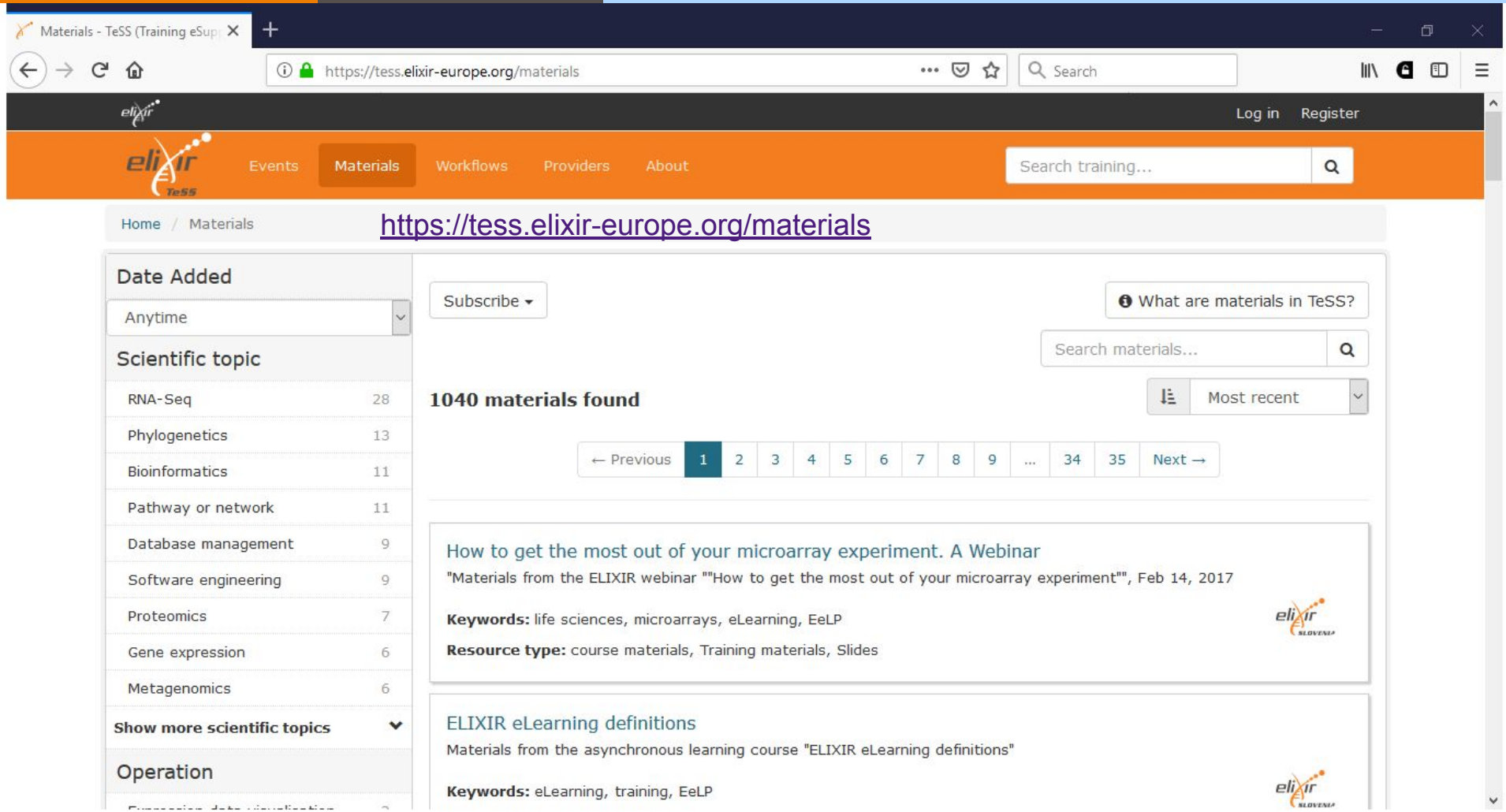
Materials - TeSS (Training eSup
https://tess.elixir-europe.org/materials
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Log in
Register
Events
Materials
Workflows
Providers
About
Search training...
Home / Materials
https://tess.elixir-europe.org/materials
Date Added
Anytime
Scientific topic
RNA-Seq 28
Phylogenetics 13
Bioinformatics 11
Pathway or network 11
Database management 9
Software engineering 9
Proteomics 7
Gene expression 6
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How to get the most out of your microarray experiment. A Webinar
"Materials from the ELIXIR webinar ""How to get the most out of your microarray experiment"", Feb 14, 2017
Keywords: life sciences, microarrays, eLearning, EeLP
Resource type: course materials, Training materials, Slides
ELIXIR eLearning definitions
Materials from the asynchronous learning course "ELIXIR eLearning definitions"
Keywords: eLearning, training, EeLP

Expert Tour Guide on Data Mar

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Expert Tour Guide on Data Management

About this expert tour guide

This tour guide by CESSDA ERIC (the Consortium of European Social Science Data Archives European Infrastructure Consortium) aims to put social scientists like yourself at the heart of making their research data findable, understandable, sustainably accessible and reusable.

You will be guided by European experts who are - on a daily basis - busy ensuring long-term access to valuable social science datasets, available for discovery and reuse at one of the 17 CESSDA social science data archives. With this guide and the training events being held across Europe, we want to accompany and inspire you in your journey through the research data life cycle.

https://www.cessda.eu/Research-Infrastructure/Training/Expert-Tour-Guide-on-Data-Management

How to improve the openness of your training

Some examples:

VSNU NL

How to improve the openness of your training

Some examples:

OpenAire

Homo Ludens: Man is playful

Gamify your training

LIBER Europe

Homo Ludens: Man is playful

It does not have to be difficult or expensive!

Melanie Imming

Which elements do you want to share and where?

Content of the training

- Slides
- Mentimeter results
- Exercises
- Videos
- Raw outputs

Info about the training

- Blog
- Tweets etc: e.g. via moments
- Videos
- Structure, concept; e.g. as a FOSTER resource

Melanie Imming

What is important if you want to share elements of your training?

Ask for permission in advance

You have to ask people for their consent if you want to share materials like photos or videos that they are included in. If you do so in advance, you never have to worry about that later;

Use proper licenses

If you make sure to use the proper licenses while preparing your slides, exercises and videos etc, you don’t ever have to worry about that later;

Melanie Imming

What is important if you want to share elements of your training?

Some examples:

FutureTDM
Explore . Analyse . Improve

Photo and Video Quit Claim

The undersigned, recognisable in the pictures and video's made at the EUHackathon on 15 November 2016, states:

- that all material and footage are made with his/her explicit authorisation;
- that FutureTDM can use the materials and footage for project purposes and make it available online, in publications and on the FutureTDM website under a CC/BY 4.0 license

Seen and approved:

Brussels, 15 November 2016

Name: **Signature:**

Exercise

Warm-up exercises!

Did you ever have a really good exercise to get to know each other?

Time for Coffee ca.11:45

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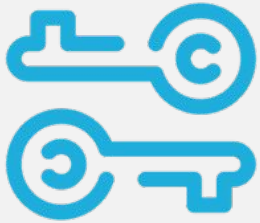
Finding open materials and understanding what you can and cannot do with them (Gwen)

Copyright

- Default
- No action required by author
- Different tresholds and duration periods (dependent on jurisdiction)
- Permission needed for all uses covered by copyright
- Limitations and exceptions allow some forms of fair use (no additional permission needed)

Public Domain

- No known rights
- Rights can expire (e.g. 70 years after death author) or there are no rights from the start
- Different per jurisdiction
- No permission needed
- All types of reuse are allowed



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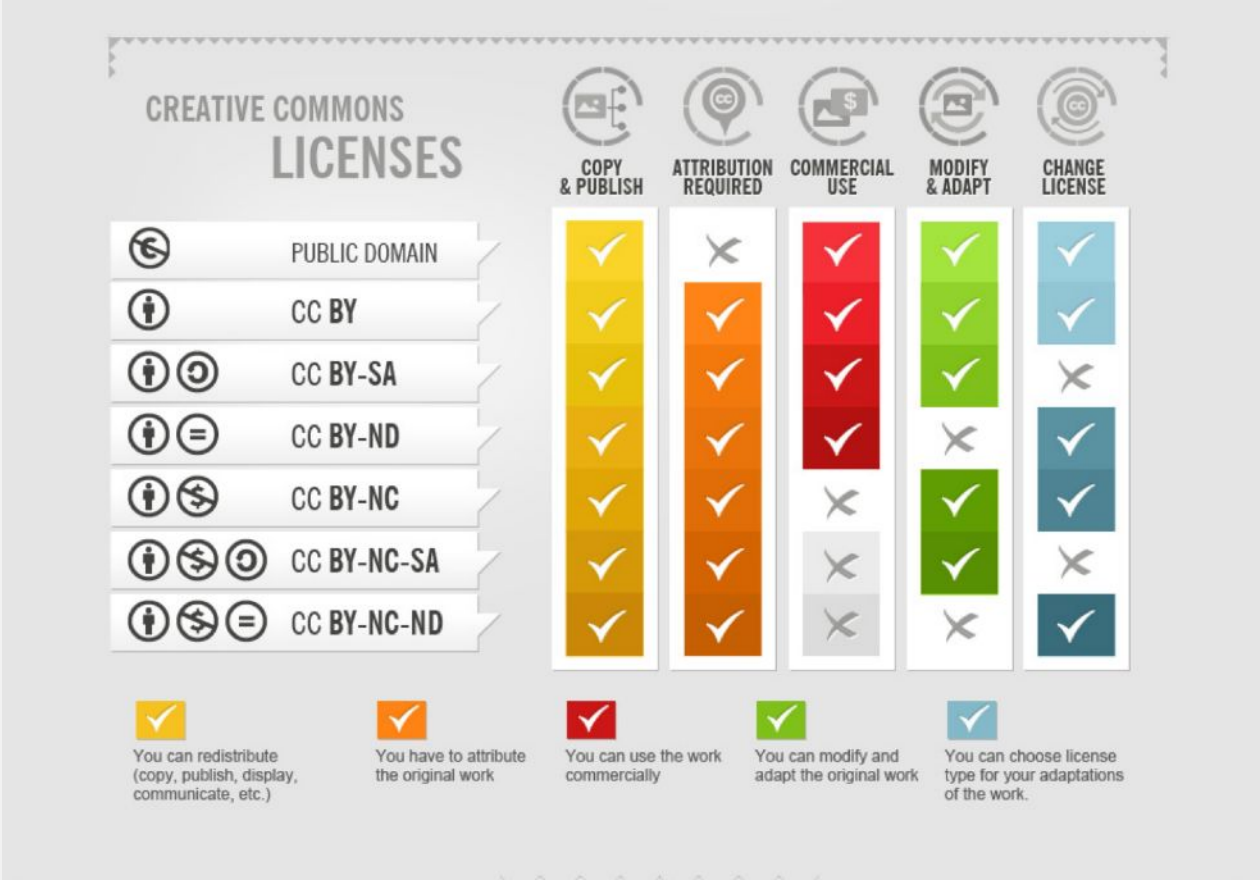

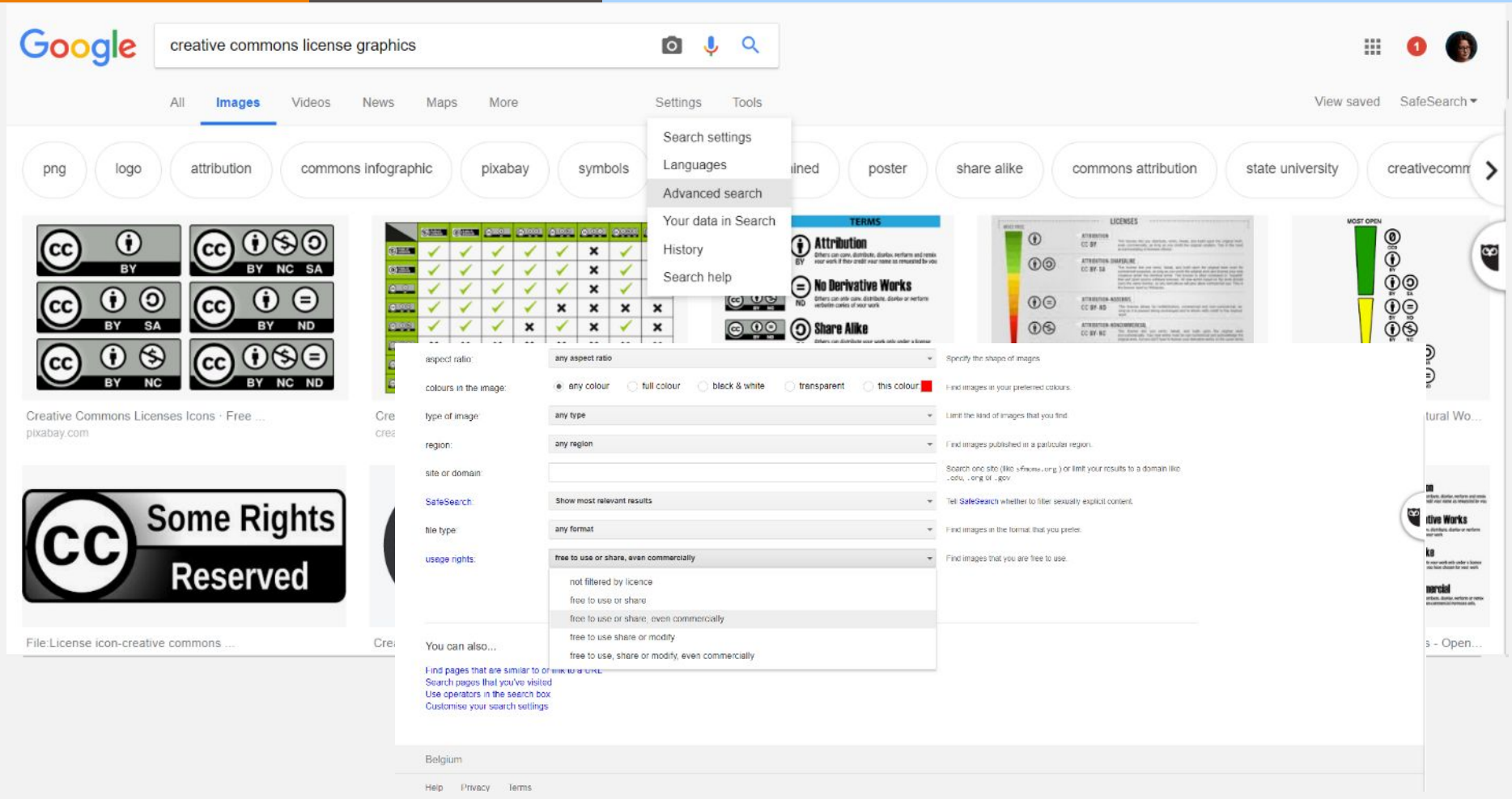
Google
creative commons license graphics
All
Images
Videos
News
Maps
More
Settings
Tools
View saved
SafeSearch
Search settings
Languages
Advanced search
Your data in Search
History
Search help
png
logo
attribution
commons infographic
pixabay
symbols
poster
share alike
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aspect ratio:
any aspect ratio
Specify the shape of images
colours in the image:
any colour
full colour
black & white
transparent
this colour:
Find images in your preferred colours.
type of image:
any type
Limit the kind of images that you find.
region:
any region
Find images published in a particular region.
site or domain:
Search one site (like wikipedia.org) or limit your results to a domain like .edu, .org or .gov
SafeSearch:
Show most relevant results
Tell SafeSearch whether to filter sexually explicit content.
file type:
any format
Find images in the format that you prefer.
usage rights:
free to use or share, even commercially
Find images that you are free to use.
not filtered by licence
free to use or share
free to use or share, even commercially
free to use share or modify
free to use, share or modify, even commercially
You can also...
Find pages that are similar to or link to a URL
Search pages that you've visited
Use operators in the search box
Customise your search settings
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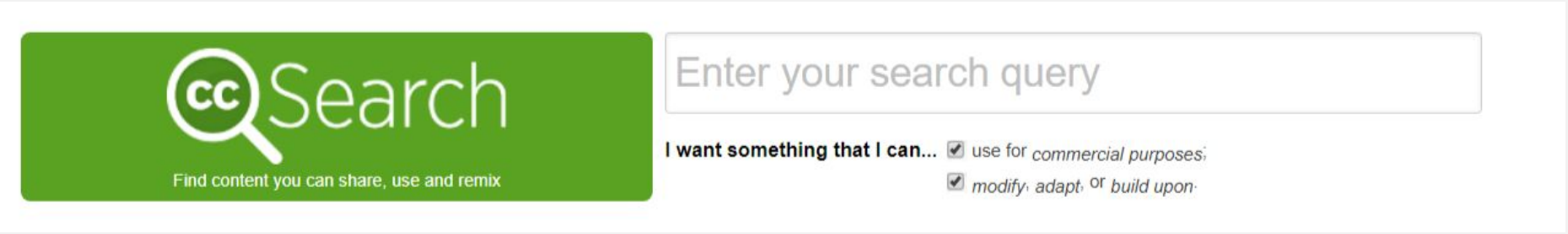

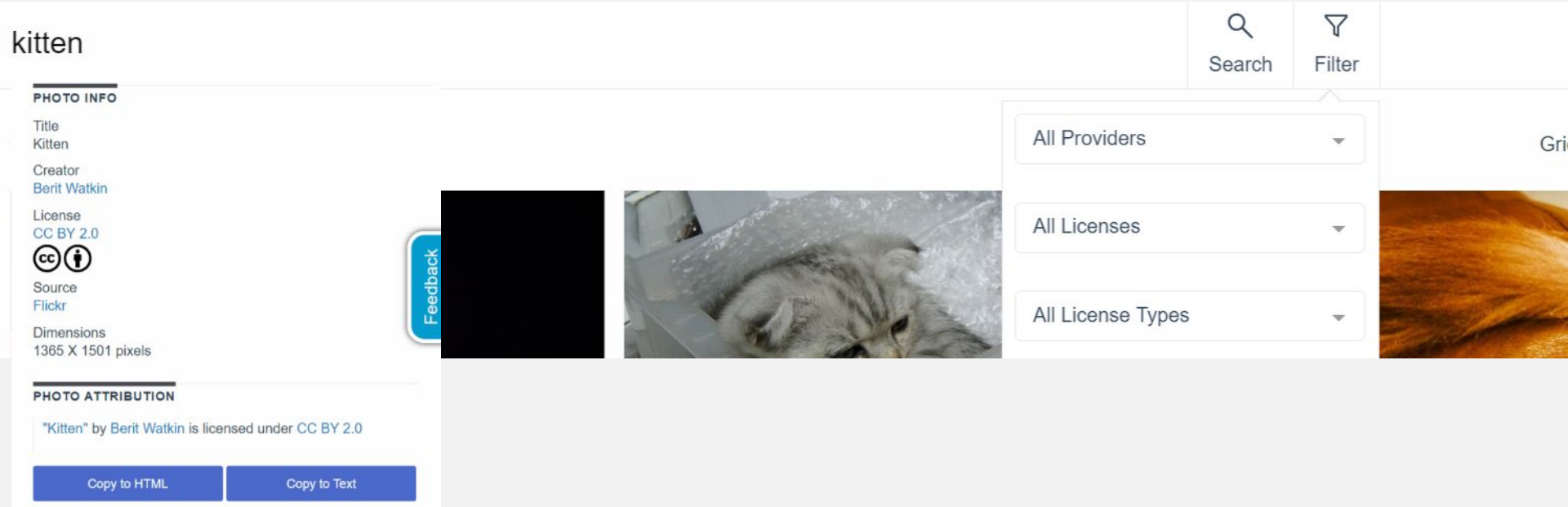

https://www.fosteropenscience.eu/

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Guidelines for supporting TDM at univ

By FutureTDM

Publication year: 2017 | Text And Data Mining | Open S

Authors: FutureTDM
Publication year: 2017
Language: English (EN)
Level of knowledge: Introductory: aware of
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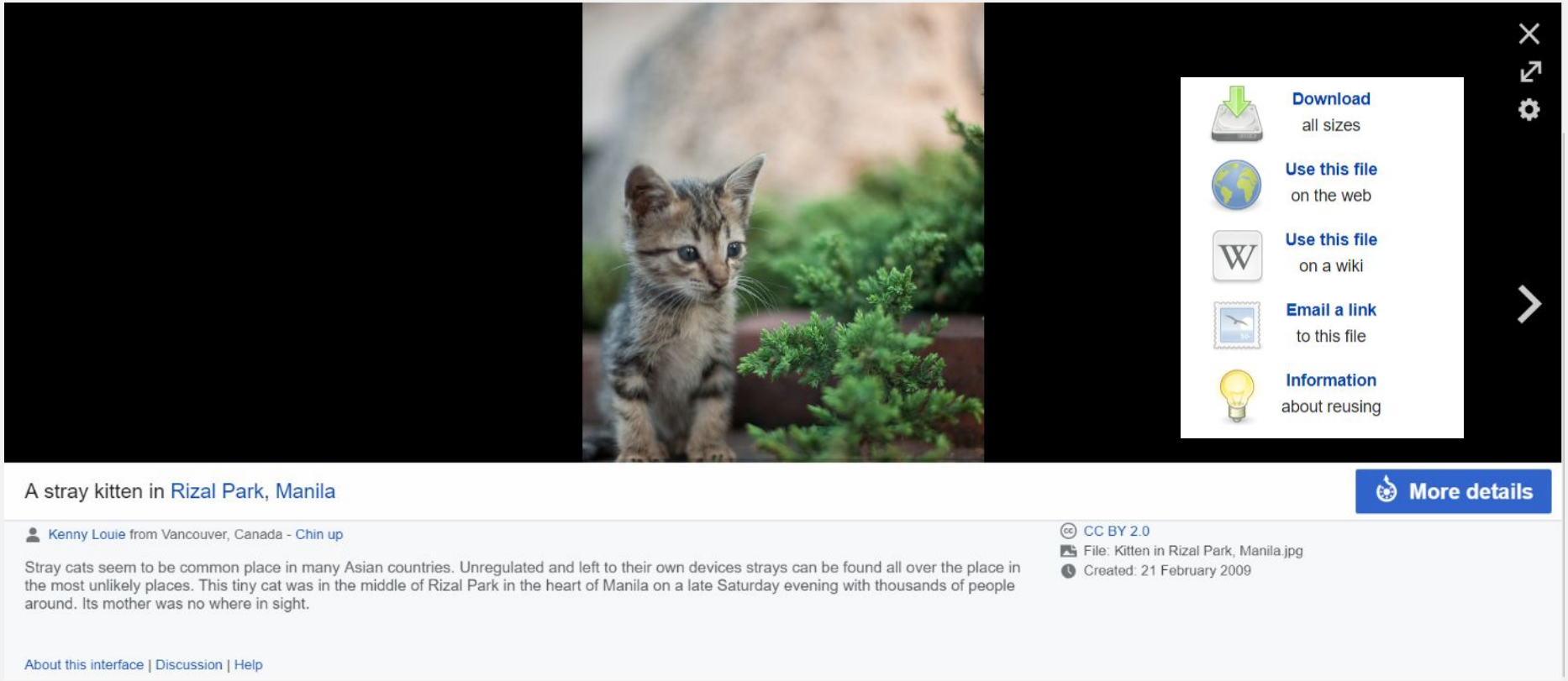
Speaker

Topics

Apply

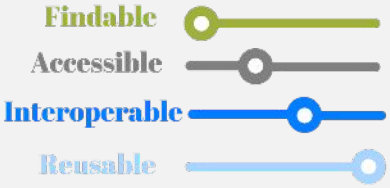
Audience

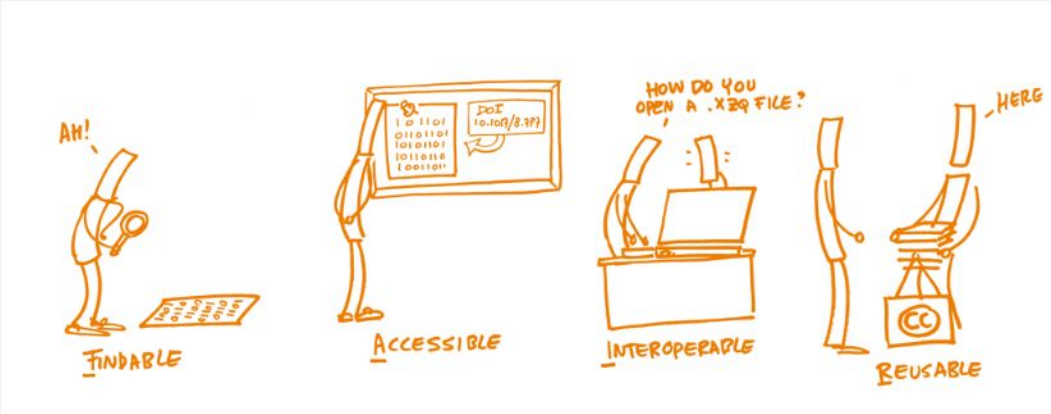
- Librarians and Repository managers
- Policy makers and Funders
- Project Managers
- Research Administration



https://commons.wikimedia.org

50 shades of OPEN





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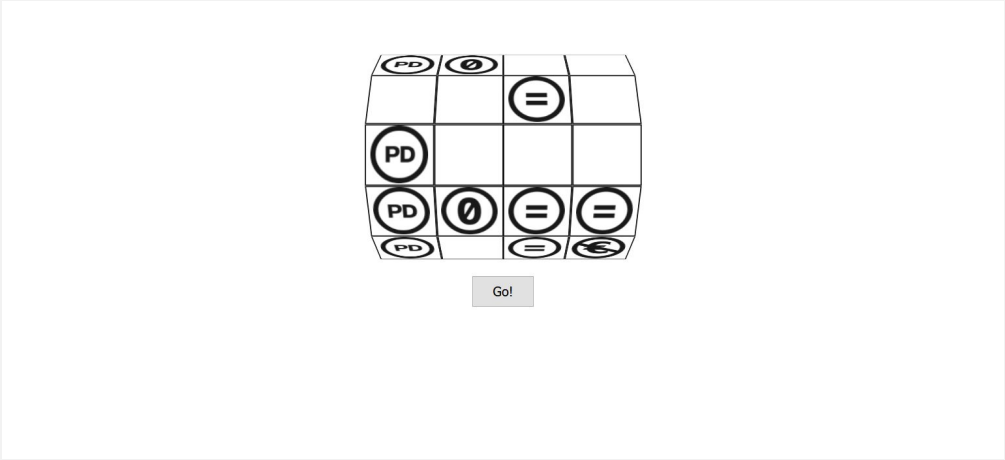

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How to give training (Helene)

Didactic Concepts - Basic Rules

Cognitive load

- We only learn 3-4 new things at a time ⟹ **simplify, reduce, prioritize**

Spaced learning

- We need to hear things several times to remember it properly ⟹ **repeat**

Formative assessments

- Answering questions can be a great way of learning (no pressure & immediate feedback) ⟹ **think about good questions that truly engage trainees & enable immediate feedback**

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Adapted from Jan Jensen: Key didactic concepts
http://proteinsandwavefunctions.blogspot.com/2015/08/writing-informed-teaching-statement-for.html

Didactic Concepts - Examples

- Active Learning
  - **Active engagement** in learning process, rather than "passively" absorbing
    - Reading, writing, discussion, and engagement in solving problems, analysis, synthesis, and evaluation
    - **Learning by doing** (e.g. flipped classroom)
    - **Cooperative learning** (e.g. peer instruction)

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https://book.fosteropenscience.eu/en/03OnLearningAndTraining/

Didactic Concepts - Examples

Twenty-Minute-Rule

- Don‘t speak longer than 20 minutes
- Practical exercise or change of topic

Klaus W. Döring: Handbuch Lehren und Trainieren in der Weiterbildung. Beltz Verlag (Weinheim, Basel) 2008.

ECLASS Reference

- **E = Explain** ⟹ Overview, rationale, goals
- **C = Clarify** ⟹ From general overview to specific details
- **A = Act** ⟹ Hands on assignments
- **L = Look** ⟹ Review examples (illustrations, animations, videos etc.)
- **S = Share** ⟹ Student interaction, exchange
- **S = Self Evaluate/Submit** ⟹ Self evaluate & complete course

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https://www.westga.edu/~distance/ojdla/winter34/gerson34.html

Adapted from René Schneider & Eliane Blumer: https://doi.org/10.5281/zenodo.1208212

Teaching Adults

- Understand how adults learn to be effective

- **Theory of Andragogy** (adult learning):
  - Emphasis on process of learning
  - Use problem-based and collaborative learning approaches
  - Emphasis on equality between teacher & learner

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Teaching Adults

1. Adults are internally motivated and self-directed	• Graded learning -- increase complexity as the program unfolds • Lead the student toward inquiry -- before too many facts • Feedback -- regular, constructive and specific • Goals -- which they complete and "tick off" • Encourage use of resources • Vary learning styles (eg VARK)
2. Adults bring life experiences and knowledge to learning experiences	• Draw on experiences • Facilitate reflective learning opportunities
3. Adults are goal oriented	• Link learning to work goals • Provide real case-studies • Ask questions -- motivate reflection, inquiry and further research

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https://docs.google.com/document/d/1ohUqqST7Q23styDUlU6t25W2q7rvYpvbr_ZlsJxOfjA/edit

Teaching Adults

4. Adults are relevancy oriented	• Reflection -- what they learnt,how to apply it • Provide some choice -- to reflect individual interests
5. Adults are practical	Students move from classroom to hands-on problem solving where they can recognise firsthand how what they are learning applies to the work context. • Be explicit -- about how learning is useful and applicable to the job • Active participation -- try things rather than observe
6. Adult learners like to be respected	Respect can be demonstrated by: • Acknowledge -- the wealth of experiences • Regarding them as an equal colleague • Encourage expression -- of ideas, reasoning and feedback
(7. Adults are pressed for time)	(from Training Principles of Adult Learning White Paper) • Just in time • Just for me

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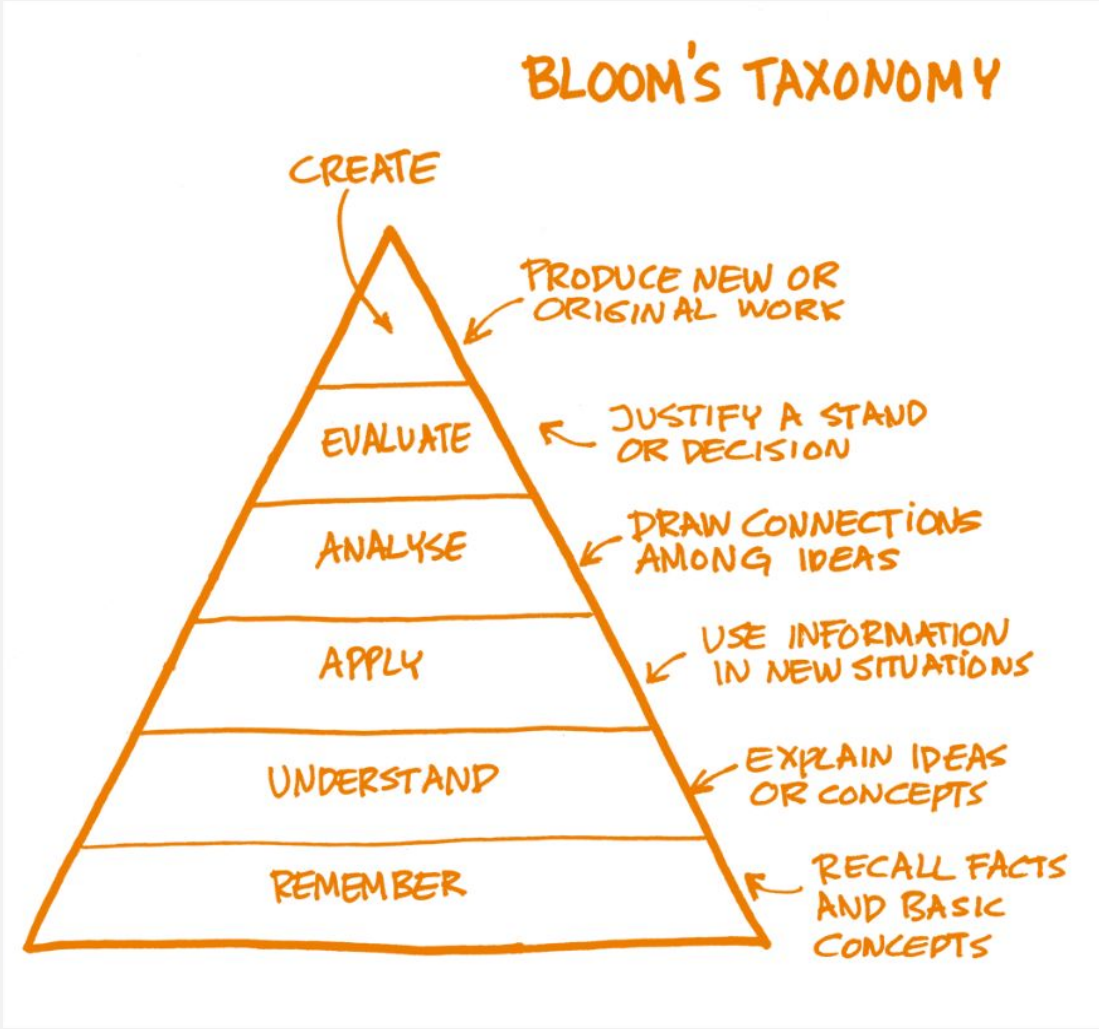
https://docs.google.com/document/d/1ohUqqST7Q23styDUlU6t25W2q7rvYpvbr_ZlsJxOfjA/edit

Cognitive levels of a learning process



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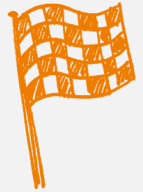
Plan based on outcomes rather than objectives (Helene)

Learning Objectives



- Describe the intentions of the instructor by stating the **purpose & goals** of the course.
- Focus on the **content & skills** important within the programme.
- May describe **what the instructors will do**.
- Should be **specific & detailed**.

https://open-science-training-handbook.gitbook.io/book/on-learning-and-training

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Learning Outcomes

- **Measurable** & **essential mastered content-knowledge**
- **Skills, competencies,** and **knowledge** that **trainees have achieved** and **can demonstrate** → what the trainees will be able to do
- **Assessable** and can be **evaluated against criteria**

→ **Clear** and **measurable criteria** for guiding the course's teaching/learning/assessment process.

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https://open-science-training-handbook.gitbook.io/book/on-learning-and-training

Learning Objectives & Outcomes - Example

https://www.fosteropenscience.eu/learning/what-is-open-science

<<This introductory course will help you to understand what open science is and why it is something you should care about.

You'll get to grips with the expectations of research funders and will learn how practising aspects of open science can benefit your career progression.>>

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Learning Objectives & Outcomes - Example

<<Upon completing this course, you will:

- Understand what Open Science means and why you should care about it
- Be aware of some of the different ways to go about making your own research more open over the research lifecycle
- Understand why funding bodies are in support of Open Science and what their basic requirements are
- Be aware of the potential benefits of practicing open science>>

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https://www.fosteropenscience.eu/learning/what-is-open-science

It’s up to you …

When designing training:

1. Think first of objectives
2. List what outcomes you want your audience to achieve
3. Design all your practical exercises around specific outcomes.

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It’s up to you … - Exercise

- In groups of 2 …
- Each pick an aspect of open science that interests you.
- Write it down.
- Think of learning outcomes for training on your chosen aspect.
- Compare & discuss the results in your group.

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Learning Outcomes Review Checklist

- Is it measurable?
- Does it target a discrete aspect of expected performance?
- Is it student-centered?
- Does it utilize an effective, action verb that targets the desired level of performance?
- Does it measure a range of educational outcomes?
- Does it match instructional activities and assessments?
- Does it specify appropriate conditions for performance?
- Is it written in terms of observable, behavioral outcomes?

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https://teaching.cornell.edu/resource/learning-outcomes-review-checklist

What works and what doesn't? - Exercise

What methods do you, and could you, use to

- drive **attention** to your training activities?
- drive up **attendance** at your training activities - how can you turn REGISTRATION (i.e. interest) into ATTENDANCE (i.e. action)?
- to measure and evaluate your **impact**?

https://docs.google.com/document/d/1ohUqqST7Q23styDUlU6t25W2q7rvYpvbr_ZlsJxOfjA/edit

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Time for Lunch 13-14:00

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Designing your own mini-training (Gwen)

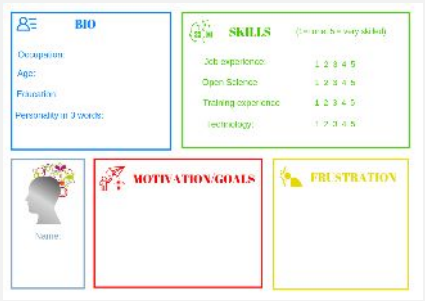
Design your own training

TOPIC(s): choose per group

Pick a Card:

TRAINING TYPE
AUDIENCE SIZE
AUDIENCE TYPE
KNOWLEDGE LEVEL

Create a PERSONA



Create a training (1,5 hour)
Structure
Materials
Exercise
...

Design your own training

Present your plans to the other groups (5 mins):
(note: you don't have to give the training, just describe what you will do!)

Troubleshooting:

AUDIENCE MOOD
DISTURBING FACTORS

EVALUATION
Is the proposed training appropriate for audience size, type and level of knowledge?
Are the training materials adequate, understandable and accessible?

BIO

Occupation:

Age:

Education:

Personality in 3 words:

SKILLS

(1=none, 5 = very skilled)

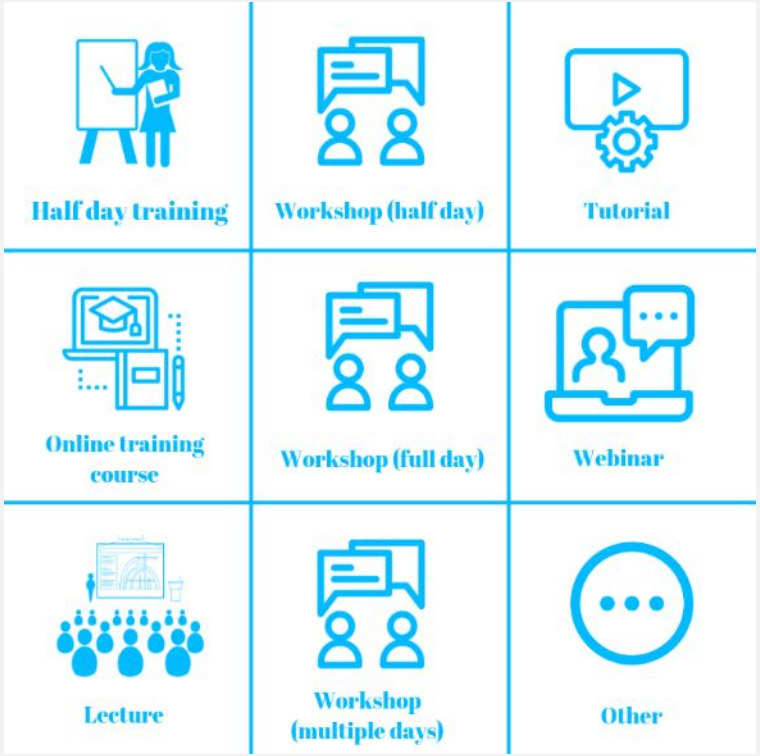
Job experience:	1 2 3 4 5
Knowledge about training topic:	1 2 3 4 5
Training experience:	1 2 3 4 5
Technology:	1 2 3 4 5

Name:

MOTIVATION/GOALS

FRUSTRATION

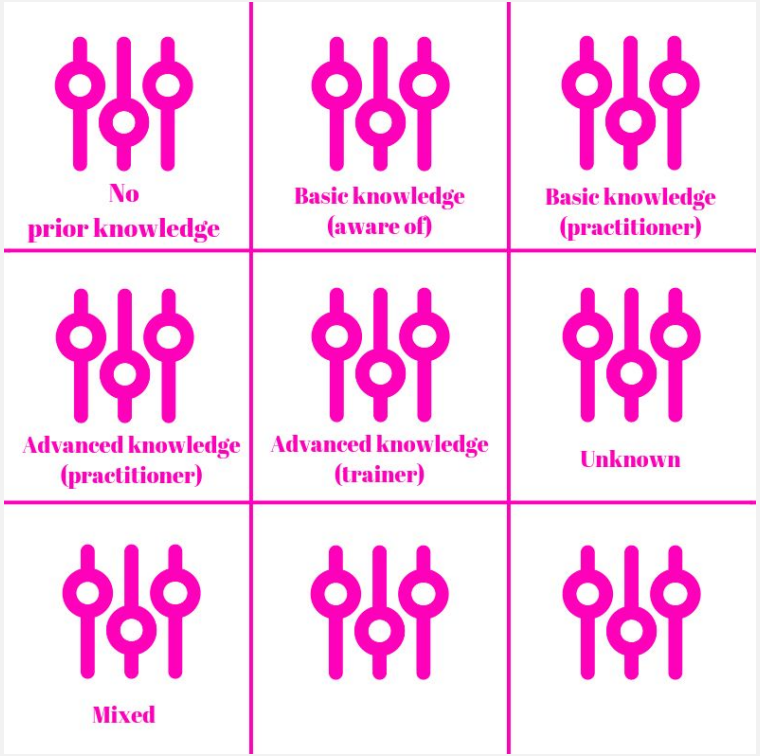
Training Type



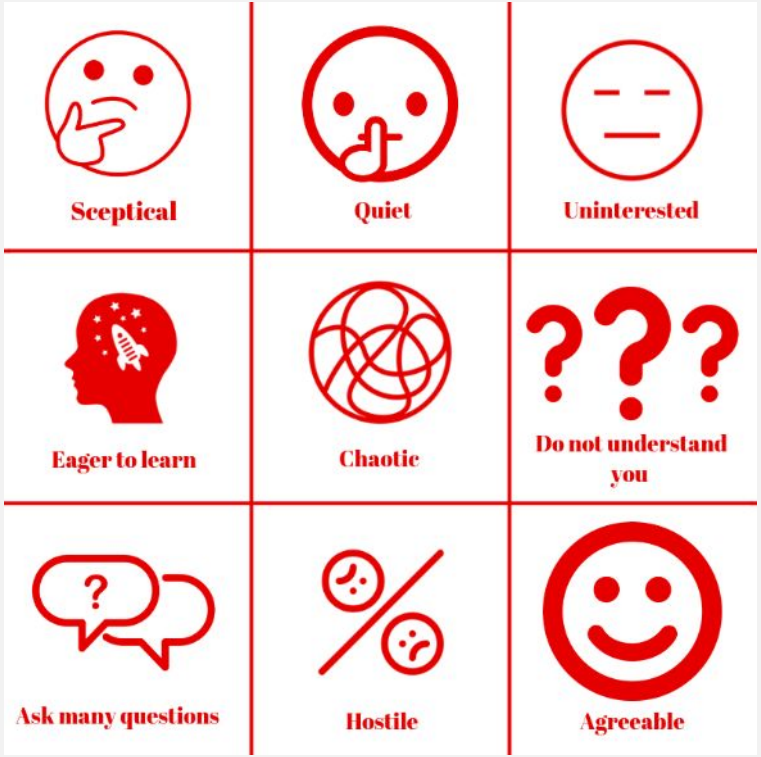
Audience SIZE

Audience TYPE

Knowledge Level



The Unpredictable: Audience Mood



The Unpredictable: External factors

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Thank you! Questions?

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Twitter: @fosterscience

Youtube: FOSTER Open Science

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gwen.franck@eifl.net

@g_fra

brinken@sub.uni-goettingen.de

@HeleneBrinken

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