



Educating for Refinement and beyond

Anna Olsson

Finnish 3R Symposium 7 November 2023



This talk

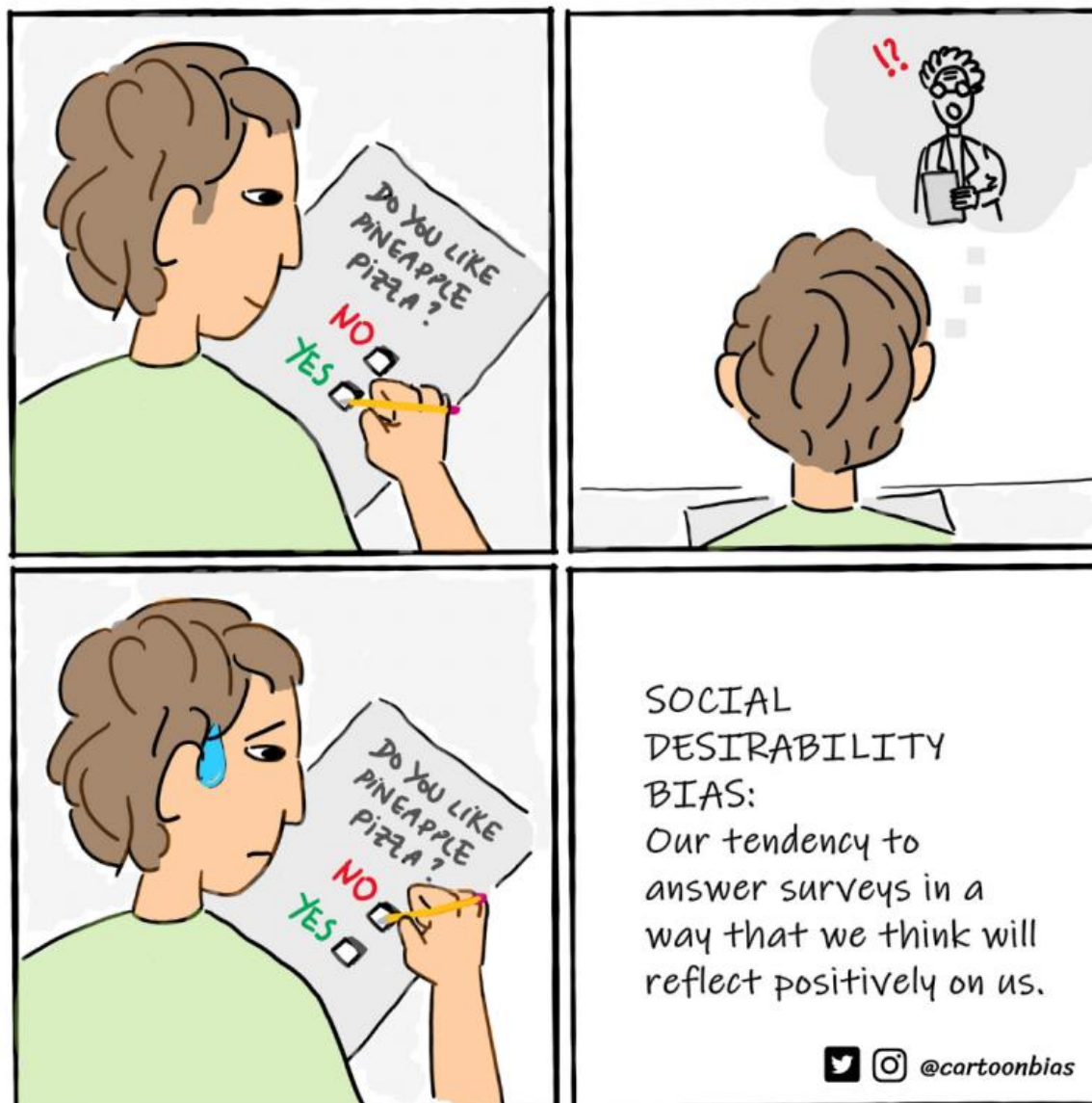
- This is a talk based on experience of and ideas about teaching
- It will be about well established teaching and teaching that is still to be established
- My aim is for this talk to serve as inspiration and stimulate discussion



1. Vote at Slido.com

- #1369919







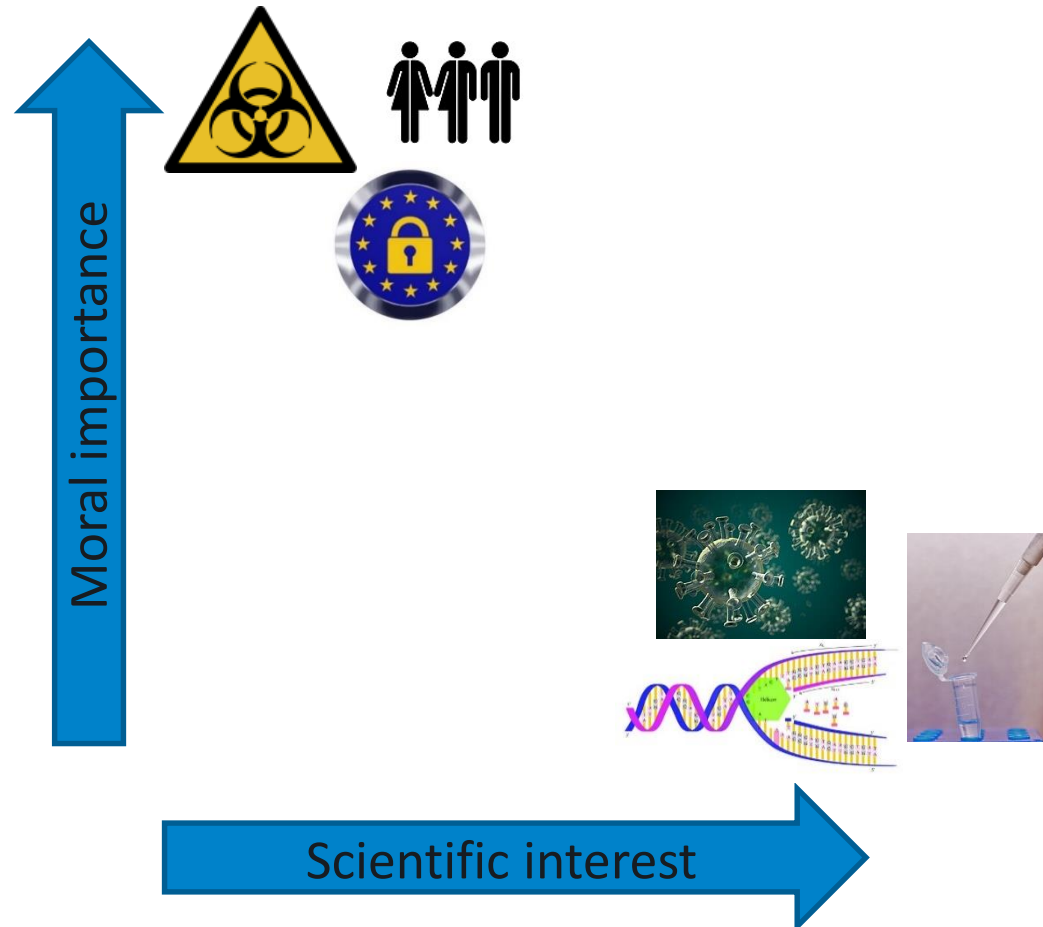
What do you think was the main reason for your colleagues to get training in laboratory animal science?

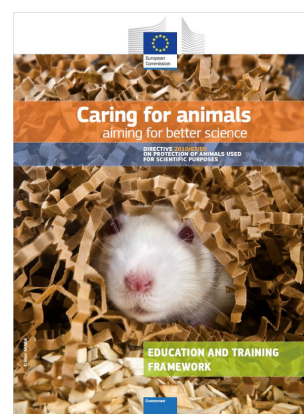
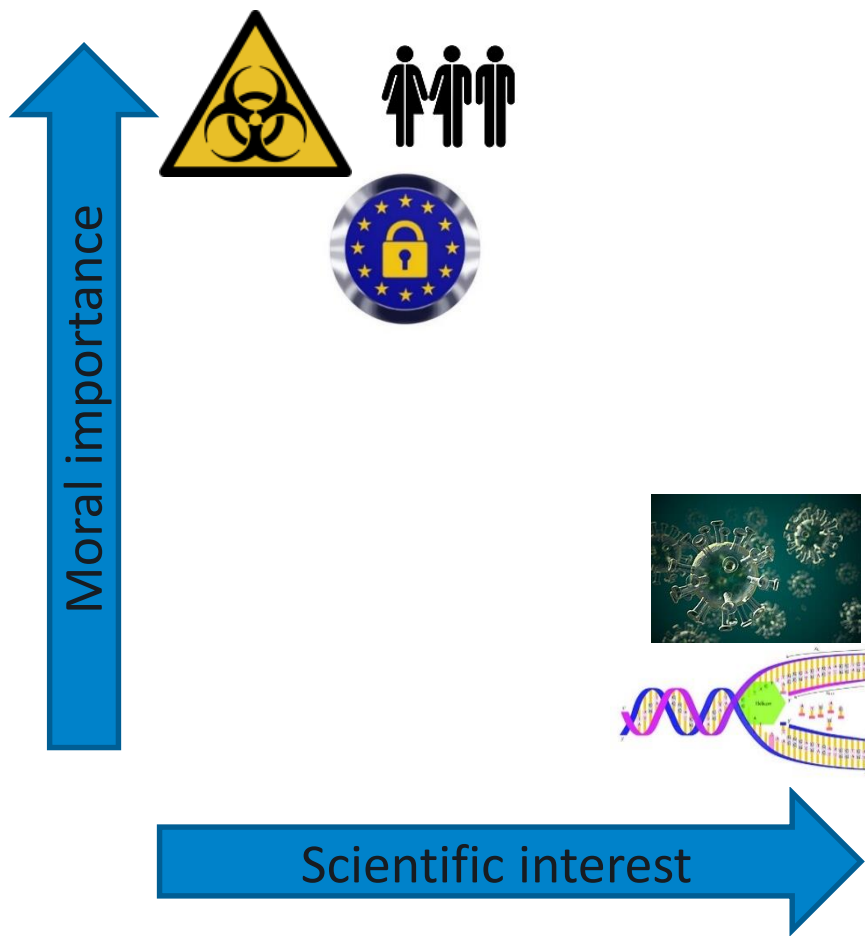
slido



Which of these best describe your experience of laboratory animal science training?

ⓘ Start presenting to display the poll results on this slide.





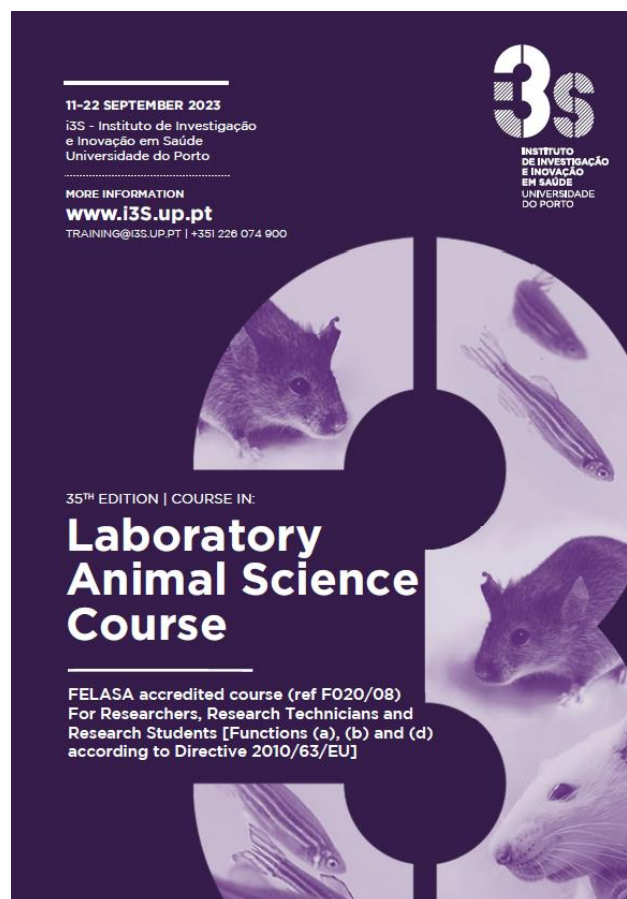


How do we deliver Laboratory Animal Science training that matters to students?

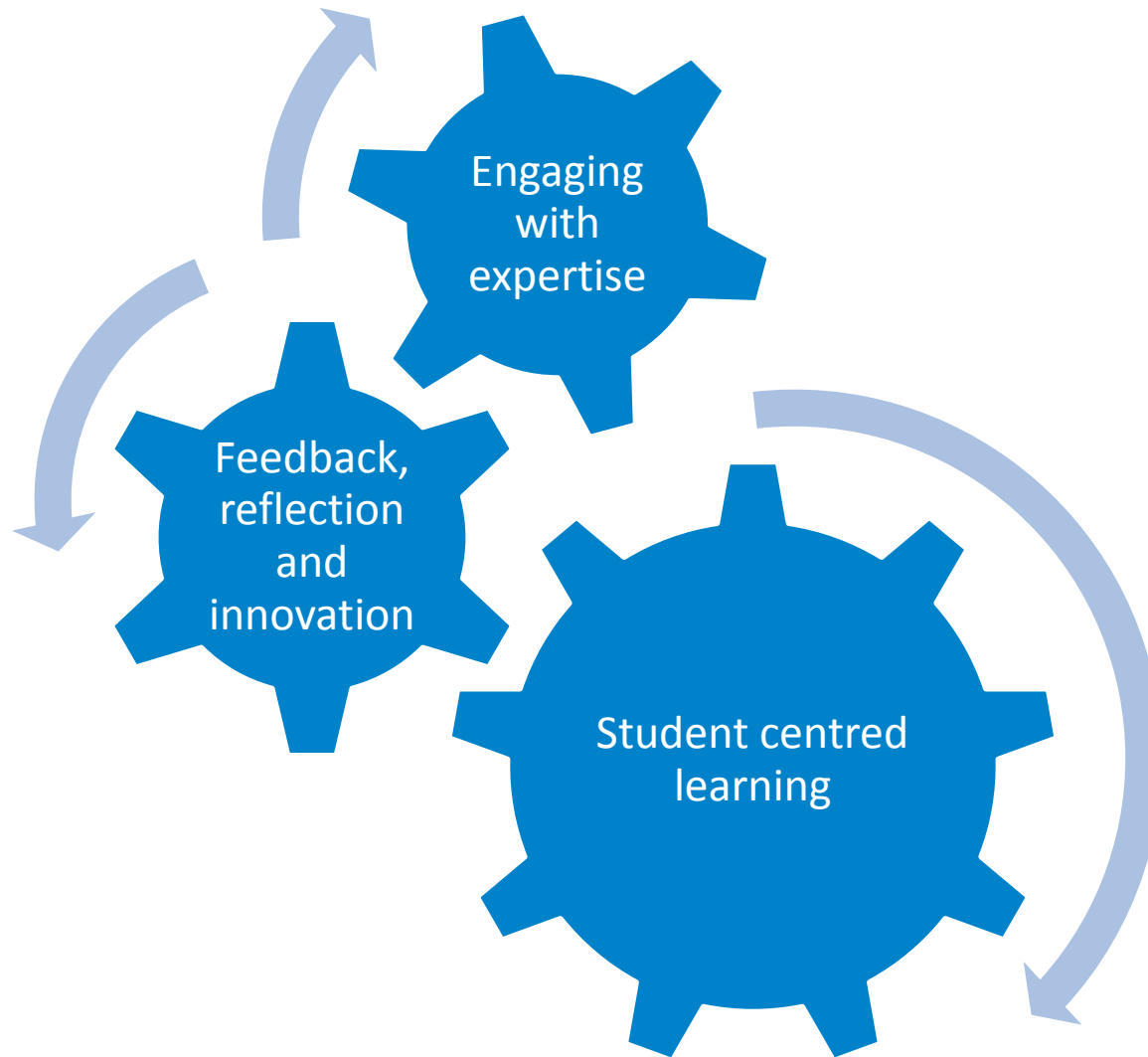


Reflections based on experience

- Developing and running a training course for researchers planning and performing experiments with animals
- FELASA Cat C => Functions A, B & D
- 80 hours theory and practice
- FELASA accreditation since 2008



INSTITUTO
DE INVESTIGAÇÃO
E INOVAÇÃO
EM SAÚDE
UNIVERSIDADE
DO PORTO





Engaging with expertise

Students expect to be taught by experts – and to *meet* these experts

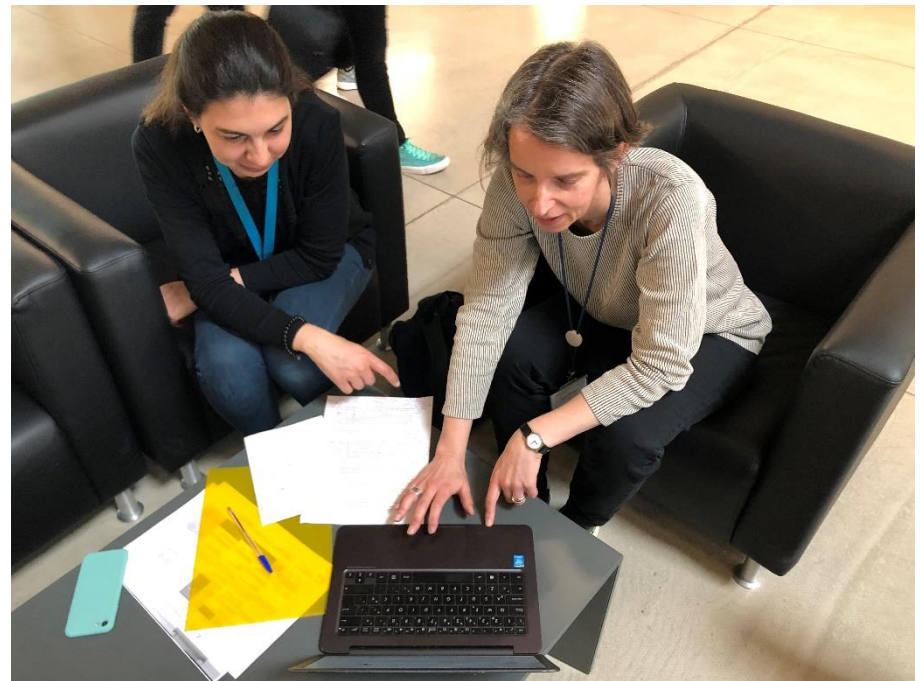
- Strong in-person component
- This doesn't exclude online learning

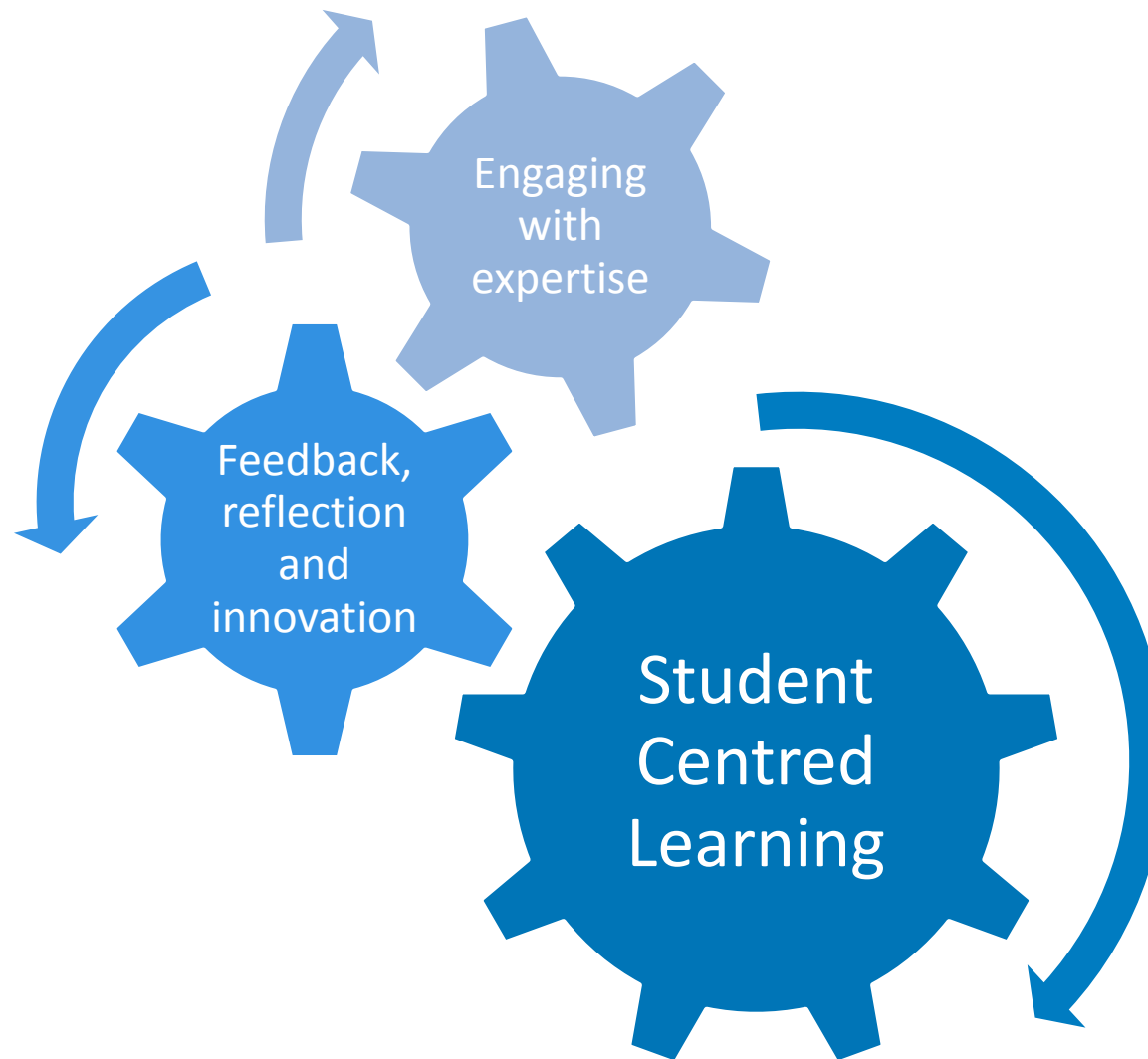




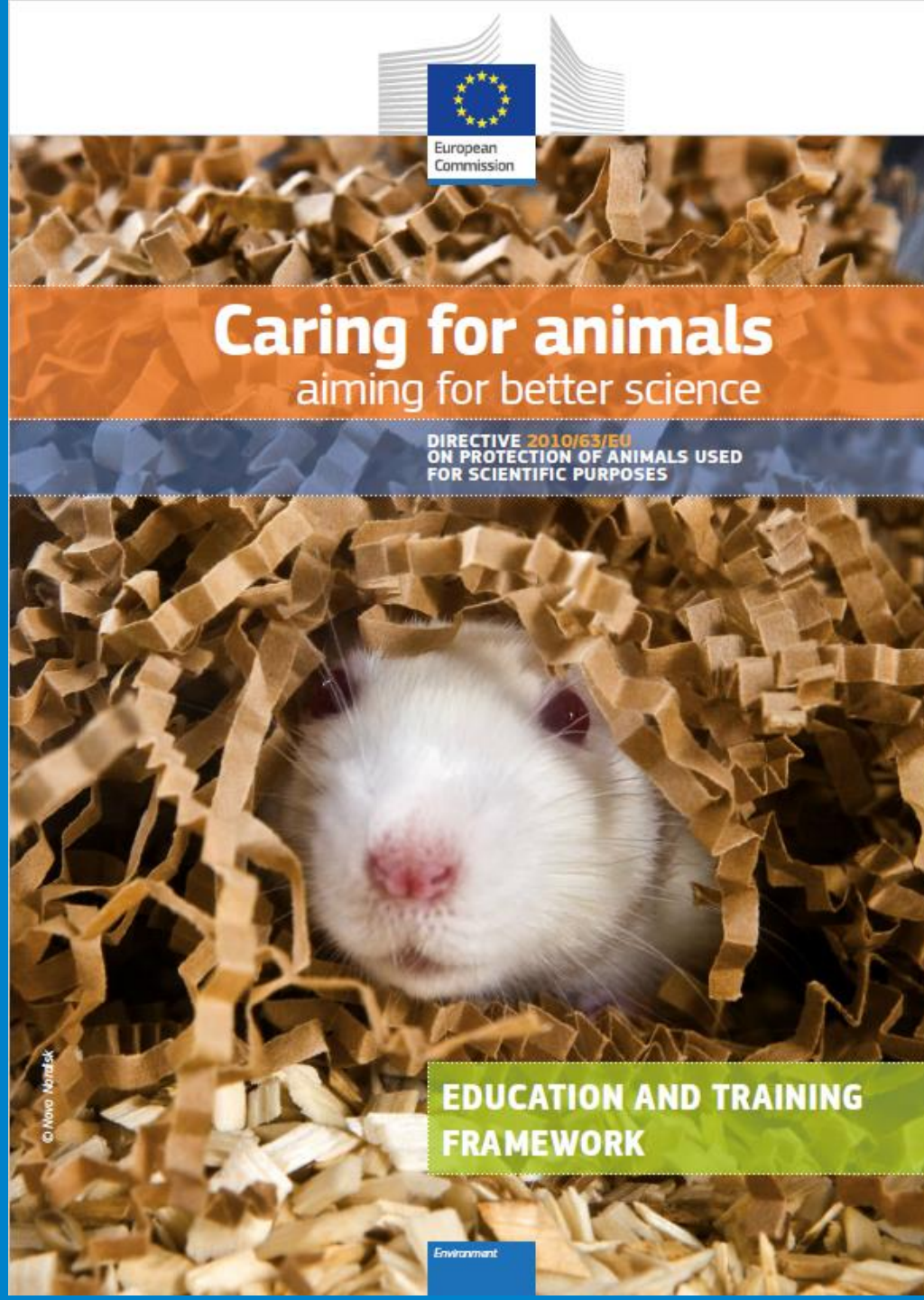
Feedback, reflection and innovation

- Student feedback + own reflections => continuous reassessment and readjustment

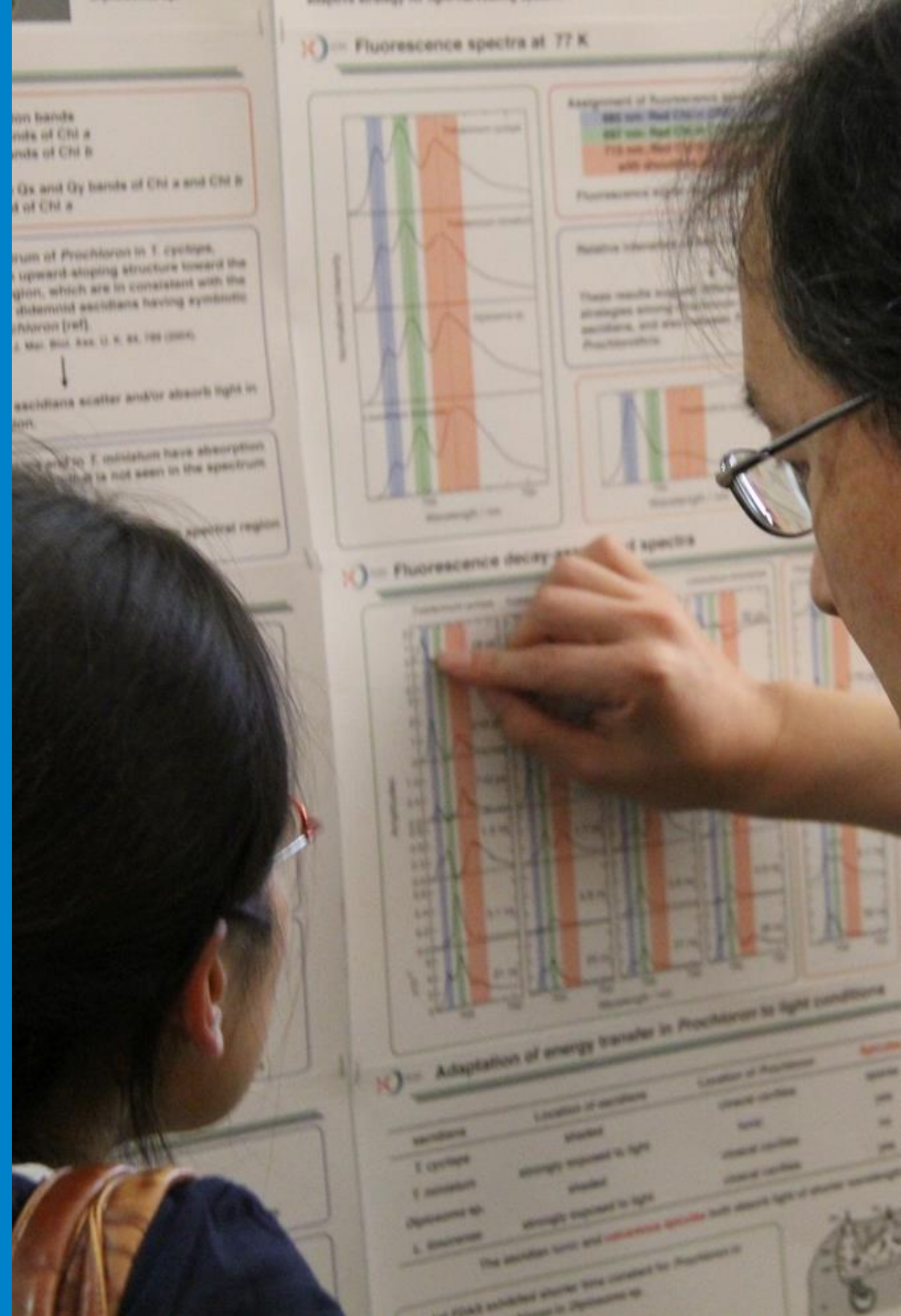




Learning
outcomes are
helpful tools for
teachers



*Students need
to develop
competences
for a
professional
role*





To plan and perform research with
animals of high scientific quality with
respect for animal welfare and ethics



Create a learning environment where students practice this role

- A transversal project that runs through the course from start to end
- Show the students how this relates to everything they learn during the course and to what they will do as professionals
- Streamline the process to help the students focus on learning and practice
- Integrate with other teaching activities



Protocol preparation group assignment

- Preparing a complete protocol for a research project or an experiment with animals
- Projects presented and defended orally during the last day of the course





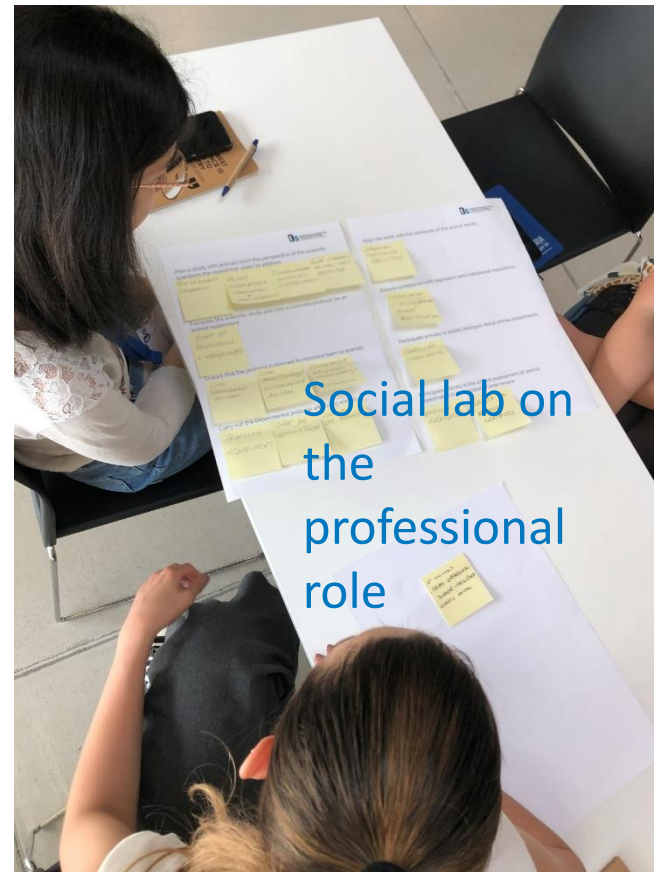
Engaging students from the start

Advanced Course in Laboratory Animal Science

Feel free to answer in Portuguese or in English

*Mandatory questions

Name*
Brief description of your present research* (scientific area, research question, methodology, species of research animal you work with)
<p>Sharing individual reflections on own research and the course</p>
If you could choose, what would you like to do the group assignment on?* (in terms of scientific area, research question, methodology, and/or species of research animal)
Is there something that you really would <i>not</i> like to do the group assignment on?





Engaging students from the start

When we break for coffee the first morning:

- Students have started
 - to work with each other
 - to work with their own expectations for the course
 - to reflect on their professional role
- Project groups
 - Students with different backgrounds but shared interests

Planning a project with animals



Scaffolding

- The first task for the groups is to narrow in on what they want to work on
 - Area
 - Type of study
 - Animal species
- Lecture in experimental design => introduce how to plan a project
- Building the project from what is learned in other course activities
- Tutorial sessions to review progress and address questions





To plan and perform research with
animals of high scientific quality with
respect for animal welfare and ethics



Is that enough in 2023?

- 2015 and 2022 Citizen's Initiative calling for an end to the use of animals in research



European Union

EUROPEAN CITIZENS' INITIATIVE - Central online collection system

SAVE CRUELTY FREE COSMETICS - COMMIT TO A EUROPE WITHOUT ANIMAL TESTING

⊗ The collection of statements of support for this initiative has been disabled
We are currently not collecting statements of support for this initiative

Signatures collected online

1,413,383 / 1,000,000

End of the collection period: 31/08/2022



Czechia



Save
Cruelty Free
Cosmetics

STOP VIVISECTION



Home | The Initiative | Citizens' Committee | Supporters | Testimonials | BLOG!

Home

What is animal experimentation (or vivisection)

Animal experimentation is a method of biomedical research based on the study of live animals and **therefore represents a fundamental methodological error**. The error consists in considering animals and **their tissues** as reliable models for **humans**. In reality every species is different from any other species (in anatomy, physiology, immunology, gene expression ... etc... even in its basic cellular structure) and each animal species can only be its own model. Substances that are extremely poisonous for humans are perfectly harmless for various laboratory animal species: free strychnine, hemlock, arsenic, mushroom "Amanita". The similarities between two species can be verified only "a" as been repeated on the second species, namely the human, al testing useless for humans and exposes us to serious risks

Learn more:

- ✓ What is animal experimentation
- ✓ Links to Scientific Reports
- ✓ Links to Media Articles
- ✓ Quotes by Experts
- ✓ Quotes by Scientific Articles
- ✓ Why we say No to Dir. 2010/63/EU
- ✓ Interviews
- ✓ Regulation REACH
- ✓ Health Titanic
- ✓ Statistical data

INSTITUTO
DE INVESTIGAÇÃO
E INOVAÇÃO
EM SAÚDE
UNIVERSIDADE
DO PORTO



At a time when animal use in research is increasingly challenged...



EU Parliament event discusses animal research phase-out

September 2022

EU research community concerned by citizens' call for outright ban on animal testing

25 May 2023 | News

The initiative is backed by over 1.2 million people - but science and academic groups warn it would be a devastating blow for EU health research. A ban 'would endanger the lives of millions of people' says one MEP

By Thomas Brent



MEP Maria Spyraiki and Věra Jourová, vice president of the European Commission for Values and Transparency, introduce the public hearing on animal testing at the European Parliament on 25 May.

May 2023

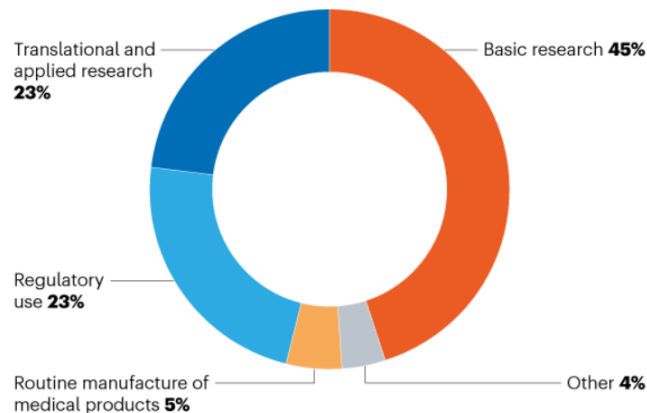
...and the proportion of animals used in research increasing...

Proportion used for basic research

- 2018 46%
- 2017 45%
- 2011 46%
- 2010 38%
- 2007 33%

ANIMALS IN SCIENCE

In 2017, more than two-thirds of recorded instances of animal use in the European Union were in basic or applied research.



2017 is the latest year for which data are available.

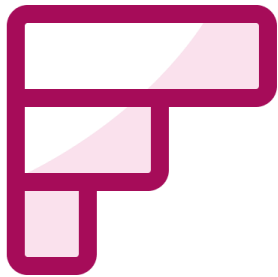
©nature

slido



Join at slido.com
#1369919

① Start presenting to display the joining instructions on this slide.



**Rank training in order of
priority for you at this career
stage**

① Start presenting to display the poll results on this slide.



How do we train and support
researchers in the use of advanced
non-animal models ?



Why this is more challenging than it may initially seem

- It is clear that we need to work on this in order to meet societal expectations
- It is also clear that doing so is not straightforward
- NAMs training can't be added to the already overloaded curriculum of LAS training
- Progress and expertise from testing doesn't transfer directly to research



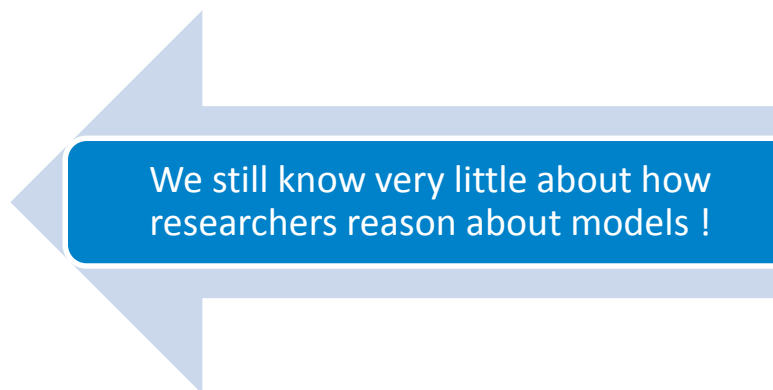
The political discussion is missing that *testing* and *research* are very different activities

Toxicology and safety testing

- Highly standardized: Direct replacement of a specific in-vivo test
- Centrally regulated: Validation => regulatory acceptance => done!

Academic research

- Very diverse purposes
- No standardization
- Academic freedom
- Distributed decision-making





We need a contemporary, informed, interdisciplinary discussion:

- of models and methods, what they are, what we use them for, what knowledge we can expect them to provide, their limits, why we choose one and not the other
- involving
 - Scientists using different methods
 - Scientists in their role as evaluators of other scientists' research
 - Sociologists of science
 - Philosophers of science

HORIZON-HLTH-2024-TOOL-05-06-TWO-STAGE

Innovative non-animal human-based tools and strategies for biomedical research


Type d'action : HORIZON Research and Innovation Actions

Nombre d'étapes : Two stage

Date d'ouverture : 30 mars 2023

Date de clôture 1 : 19 septembre 2023 17:00

Date de clôture 2 : 11 avril 2024 17:00

Détail du topic 

Budget : €25 000 000

Call : Tools and technologies for a healthy society (Two stage - 2024)

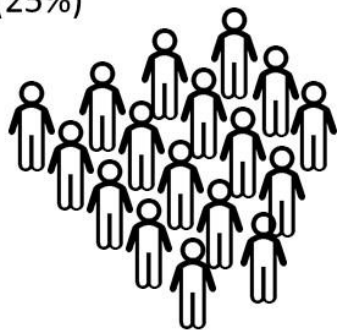
Call Identifier : HORIZON-HLTH-2024-TOOL-05-two-stage



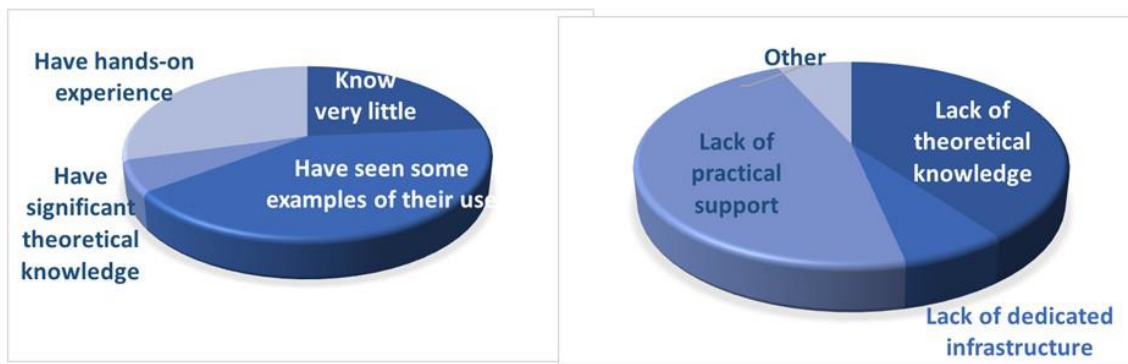
In the meantime, capacity building is important

IBMC-i3S and organoid research – snapshot Nov. 2018

17 research groups are interested (25%)



They need more knowledge and support to work with organoids



PROGRESS REPORT

**ADVANCED
SCIENCE**
CONFERENCES
www.advancedscience.com

Is it Time for Reviewer 3 to Request Human Organ Chip Experiments Instead of Animal Validation Studies?

Donald E. Ingber



Situations => system

PROGRESS REPORT



www.advancedscience.com

Is it Time for Reviewer 3 to Request Human Organ Chip Experiments Instead of Animal Validation Studies?

Donald E. Ingber

- We expect our peers to have access to an animal facility and training in using animal models but can't expect them to have the corresponding support for advanced in-vitro models!





We can also work on broadening conceptual thinking

[FEATURES](#)[ABOUT](#)[WORKSHOPS](#)[GALLERY](#)[TEAM](#)[NEWS](#)[CONTACT](#)

CREATING AWARENESS FOR THE 3R

– Replace / Reduce / Refine –

Interactive workshops focusing on the 3R for animal experiments using Design Thinking methods.

[WORKSHOPS](#)[CONTACT US](#)



[FEATURES](#)

[ABOUT](#)

[WORKSHOPS](#)

[GALLERY](#)

[TEAM](#)

[NEWS](#)

[CONTACT](#)



DR. RER. NAT. LAURA BEHM

BIOCHEMIST AND DESIGN THINKER



**DR. MED. VET. ANNEMARIE LANG, PHD
AND MEPHISTO**

VETERINARIAN AND RESEARCHER IN OSTEOARTHRITIS; CEO OF
ANIMATCH



ALEXANDRA DAMERAU MSC

BIOTECHNOLOGIST AND RESEARCHER IN THE FIELD OF
MUSCULOSKELETAL DISORDERS



Start thinking about the model, not
the *animal model*



A vision for the future

- Provide as comprehensive a training and support system for advanced non-animal research models as for animal models – and integrate the two





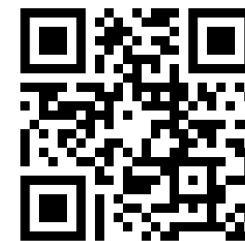
<https://3rknowledge.i3s.up.pt/>



HOME ABOUT TEAM 3RS 3RS IN PORTUGAL HIGHLIGHTS

3R KNOWLEDGE CENTER

**sharing knowledge to
Replace, Reduce and
Refine animal
experiments in life and
health sciences**



A center to promote 3Rs in life & health sciences research in Portugal



This project received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 857491