A virtual radionuclide laboratory

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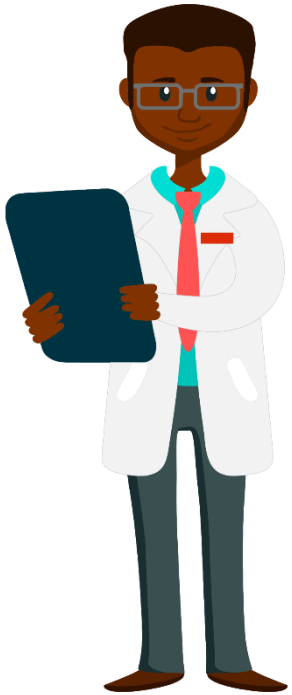
Background

- Deliverable in MEET-CINCH*

„Tailored training event for members of regulators and administrative bodies“

- Target group
  - Don’t handle activity
  - Responsible for safety standards in radionuclide laboratories
  - Special attention on legislative elements
  - Heterogeneous foreknowledge
  - Require application in national language



*This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 754972

Idea

- E-learning concept based on a virtual laboratory
  - Hardly any text in 3D environment
  - Accessible at any time
- First: online self study phase
  - Calculation task
  - Inspection of virtual laboratories
- Second: presence phase
  - Discussion of results
  - Exchange of experiences

VR-Laboratory

- Programmed in Unity
  - Desktop application
  - Available for VR-headsets
- Designed based on DIN 25425
  - Three versions for each room category (RC1-3)
  - a and b version for each
- Users are observers
  - Move freely within the lab
  - No interaction
- Hardly any written text
  - Info boxes for additional information
  - Texts can be exchanged easily

E-learning concept

- Learning objectives:
  - Practical application of DIN 25425
    - Calculation of room categories
    - Inspection of laboratory
  - Familiarize with laboratory environment
- Freely available for internal training
  - For attendees
  - For instructors
- Materials
  - General information and scope
  - Checklist for inspection
  - VR-Lab (download as zip.file)

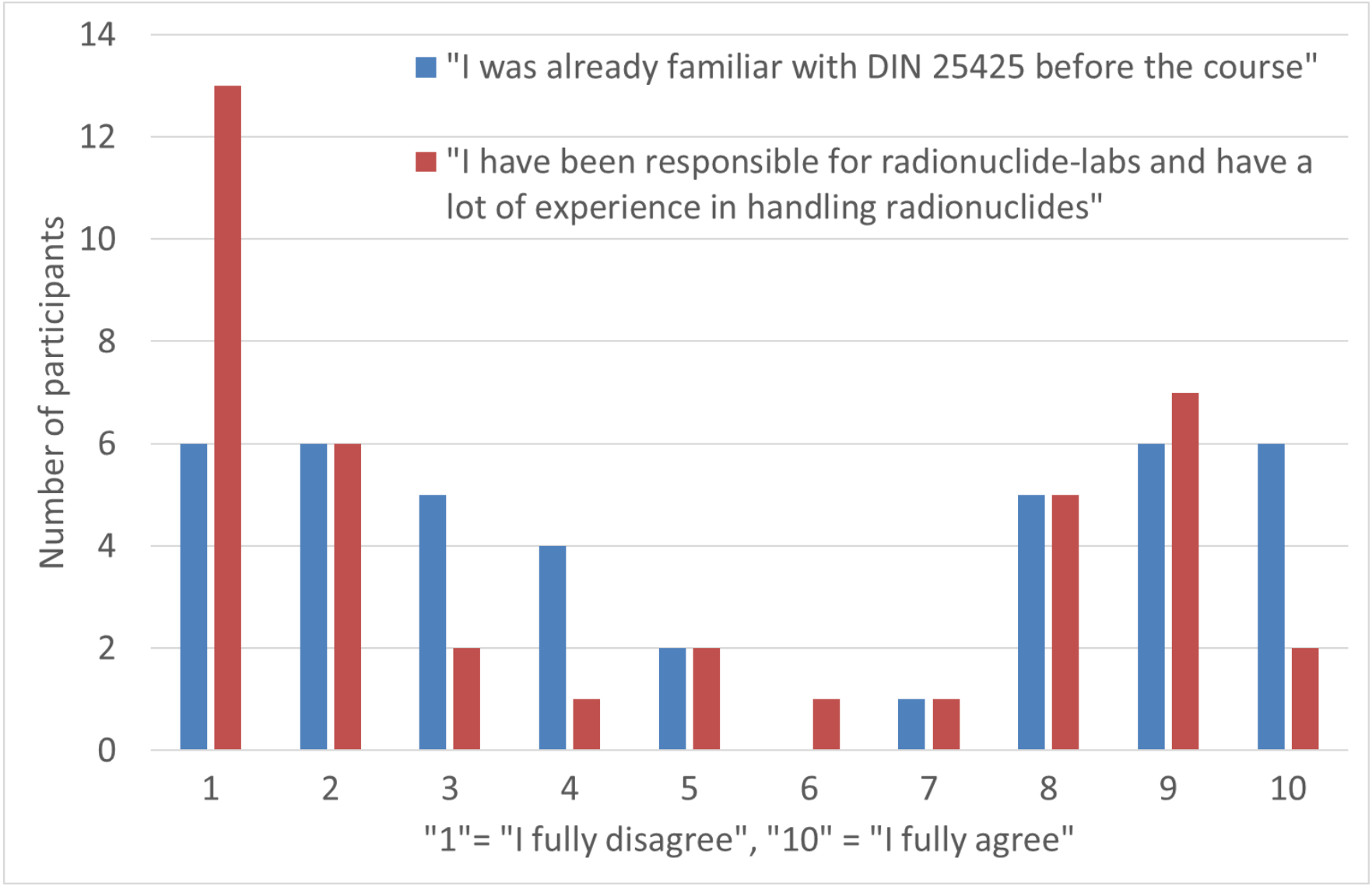
The lab

Differences in room categories

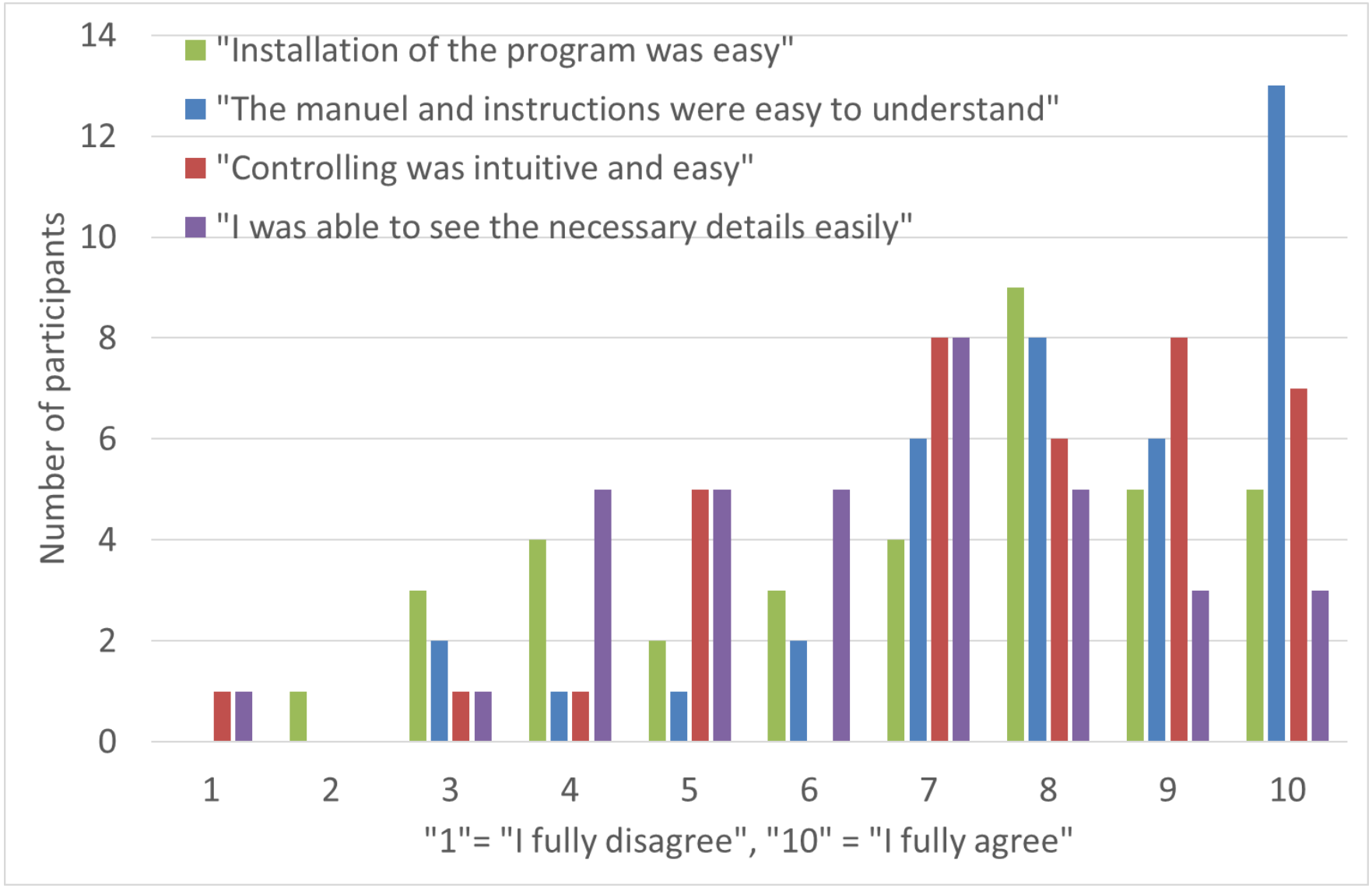
Pilot run

- Part of a seminar on radiation protection for members of authorities
  - One day workshop in August 2019 in Hannover
  - Volunteer training
  - 120 participants
- Information and scope spread six weeks in advance
- Fruitful discussion based on experience in the (virtual) wold
- Evaluation by 40 participants

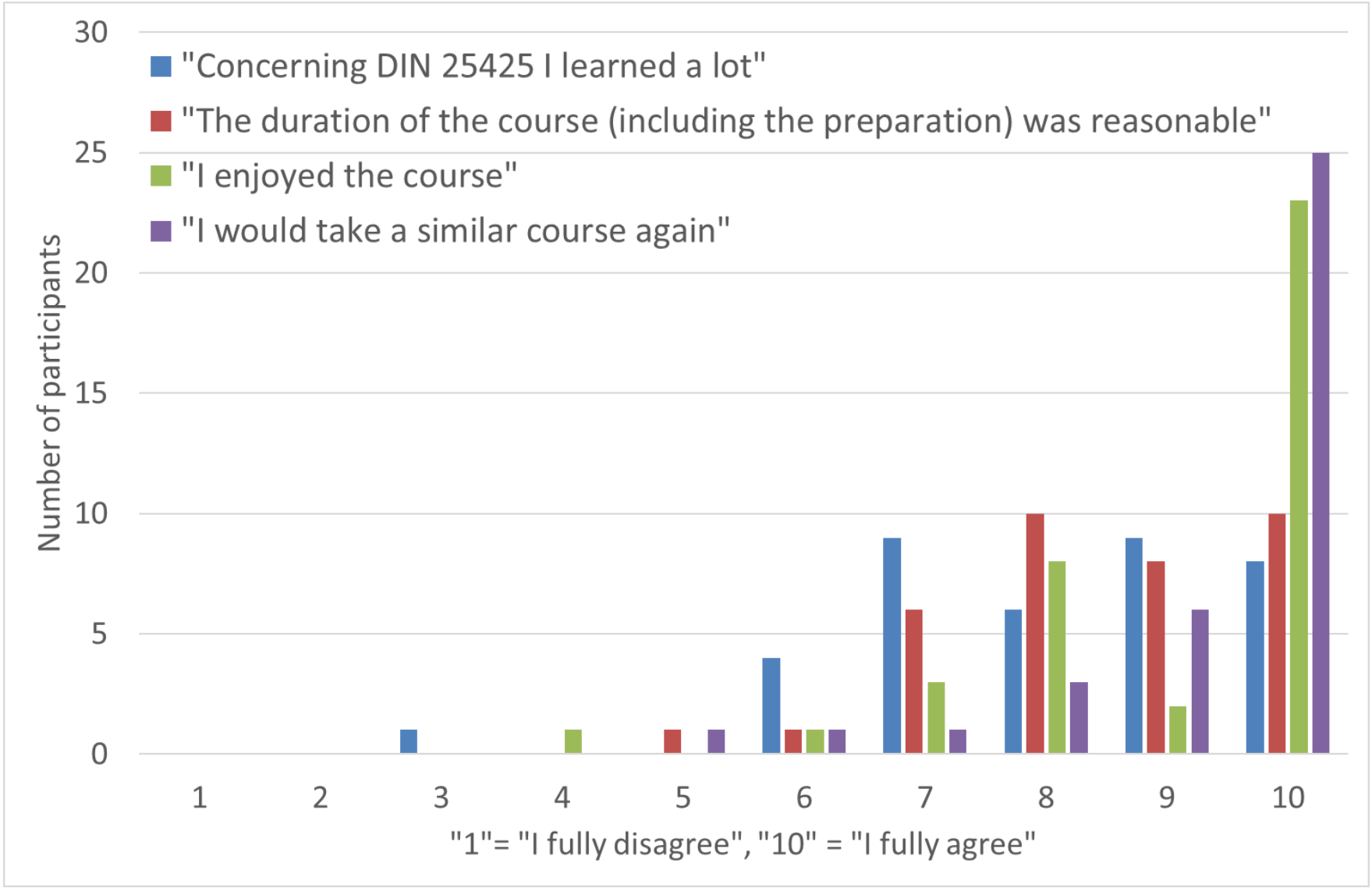
Evaluation I - Foreknowledge



Evaluation II - Performance



Evaluation III – Learning achievement



Outlook

- New project Augmented CINCH*
  - Extension of the VR-Laboratory
  - Extension of the target group
  - Virtual Hands-on-Training for VR-Headset
  - Augmented reality application for smartphones

*This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 945301

Extended VR-Laboratory

Thank you for your attention!

VR-Lab MEET-CINCH

European Commission

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