scaffold

ePortfolios to support workplace learning in healthcare education

SBO-Scaffold

21/04/2022

2022 AERA ANNUAL MEETING | APRIL 21-26, 2022

Overview: ePortfolios to scaffold workplace learning in healthcare

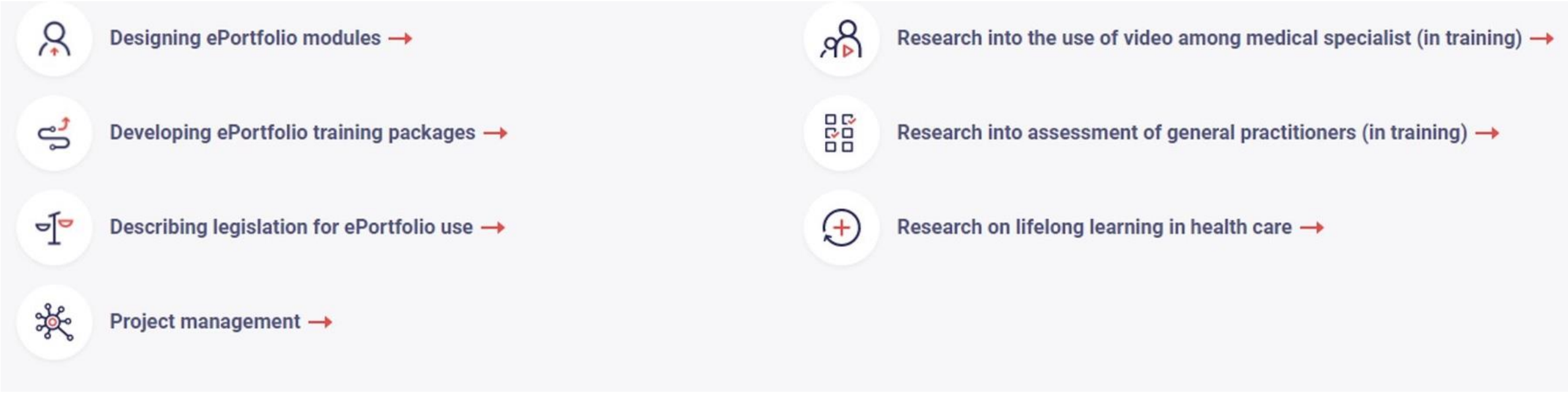
- Welcome
- Introduction
- Definition
- Policy, Legislation and Ethics
- The benefits, challenges, and recommendations
- User-centred design of ePortfolios
- ePortfolios and video recording
- Training to support ePortfolio users
- ePortfolios in developing countries

Introduction

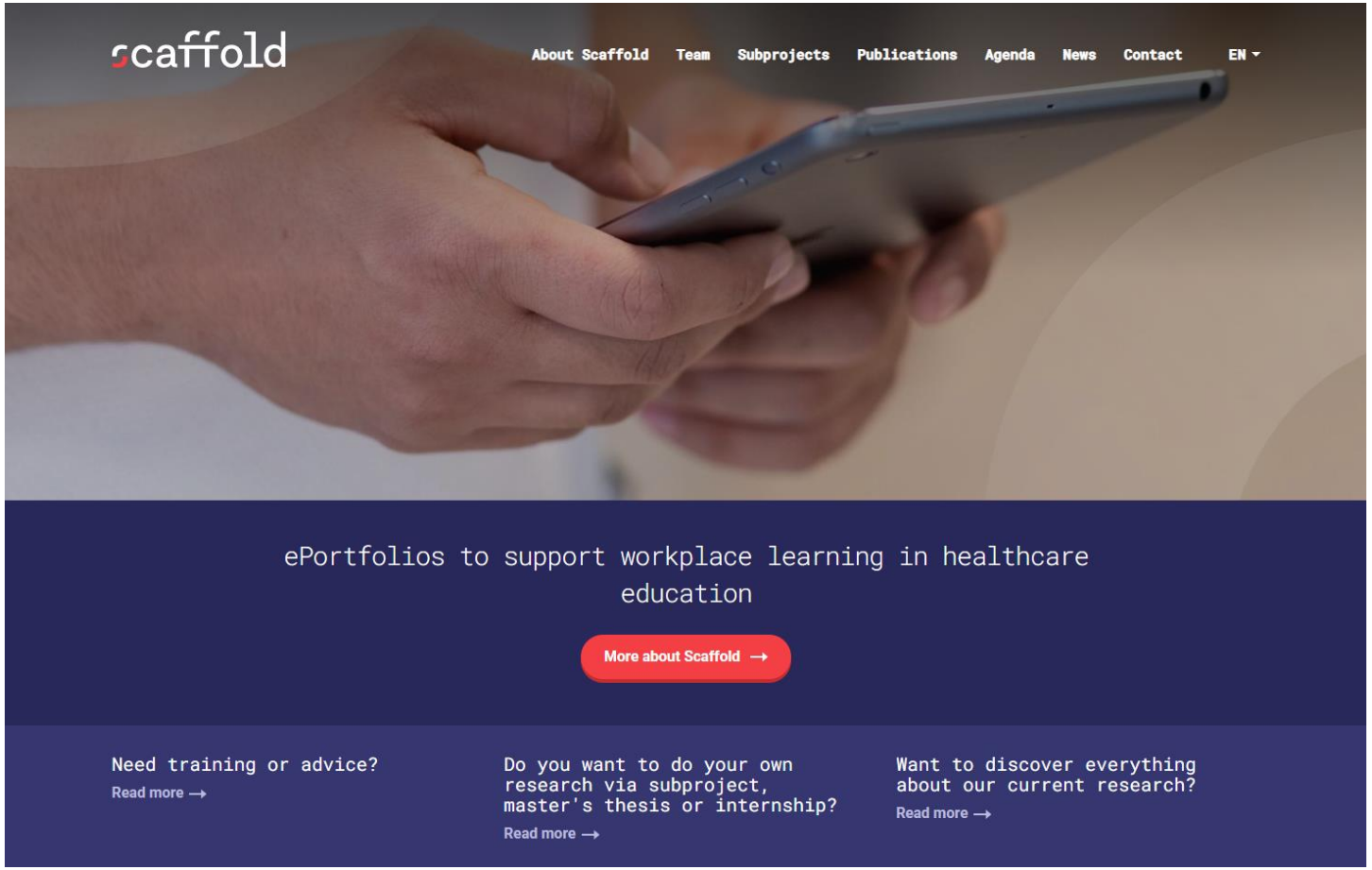
- ePortfolios: a solution or a problem?
- Why it might be a solution?
  - Workplace learning needs a ”learning backbone”
  - It helps bringing together stakeholders
  - It pushes a shared perspective, language, criteria, indicators …
  - It links educational setting – internships – future professional setting
- Why it might be a problem?
  - Health settings go hand in hand with restrictive legislation and privacy issues
  - Current solutions not in line with user needs (multimedia, interdisciplinary …)
  - No user training available
  - Competency framework needs indicator systems that have been validated

Introduction

How to deal with the solutions and turn the challenges into opportunities: SCAFFOLD project and research programme



Introduction: website



https://www.sbo-scaffold.com/en

About the project

Who we are

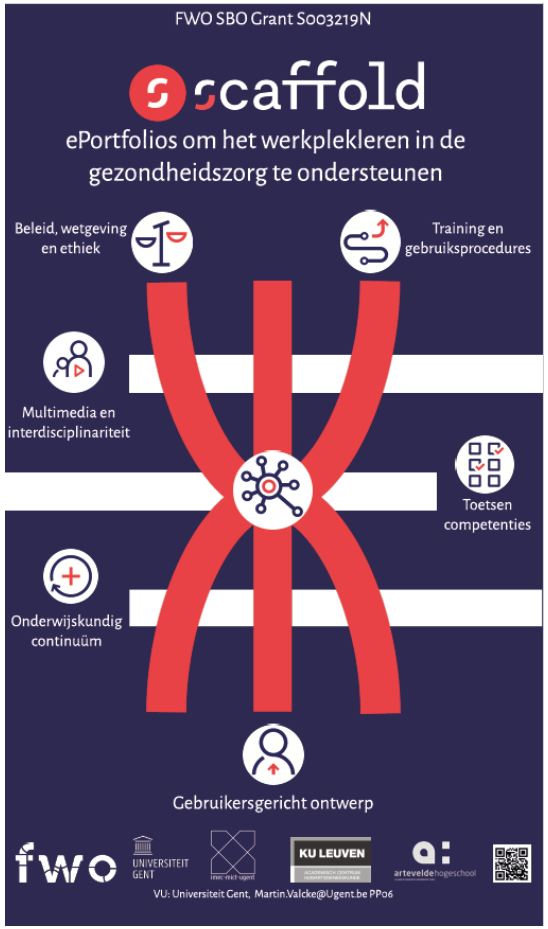
SCAFFOLD means SUPPORTING. This research project aims to design an evidence-based, state-of-the-art ePortfolio that supports healthcare students in their competence development at the workplace. During the SCAFFOLD-project, 4 doctoral students will delve into the scientific literature and into specific aspects of current ePortfolios. The new, evidence-based insights will provide the basis for developing the state-of-the-art ePortfolio. The impact of an ePortfolio on quality of healthcare and healthcare education at the workplace has a central role in this project.

What we do

- Designing ePortfolio modules →
- Developing ePortfolio training packages →
- Describing legislation for ePortfolio use →
- Project management →
- Research into the use of video among medical specialist (in training) →
- Research into assessment of general practitioners (in training) →
- Research on lifelong learning in health care →

Interested in collaborating?

Stay up to date

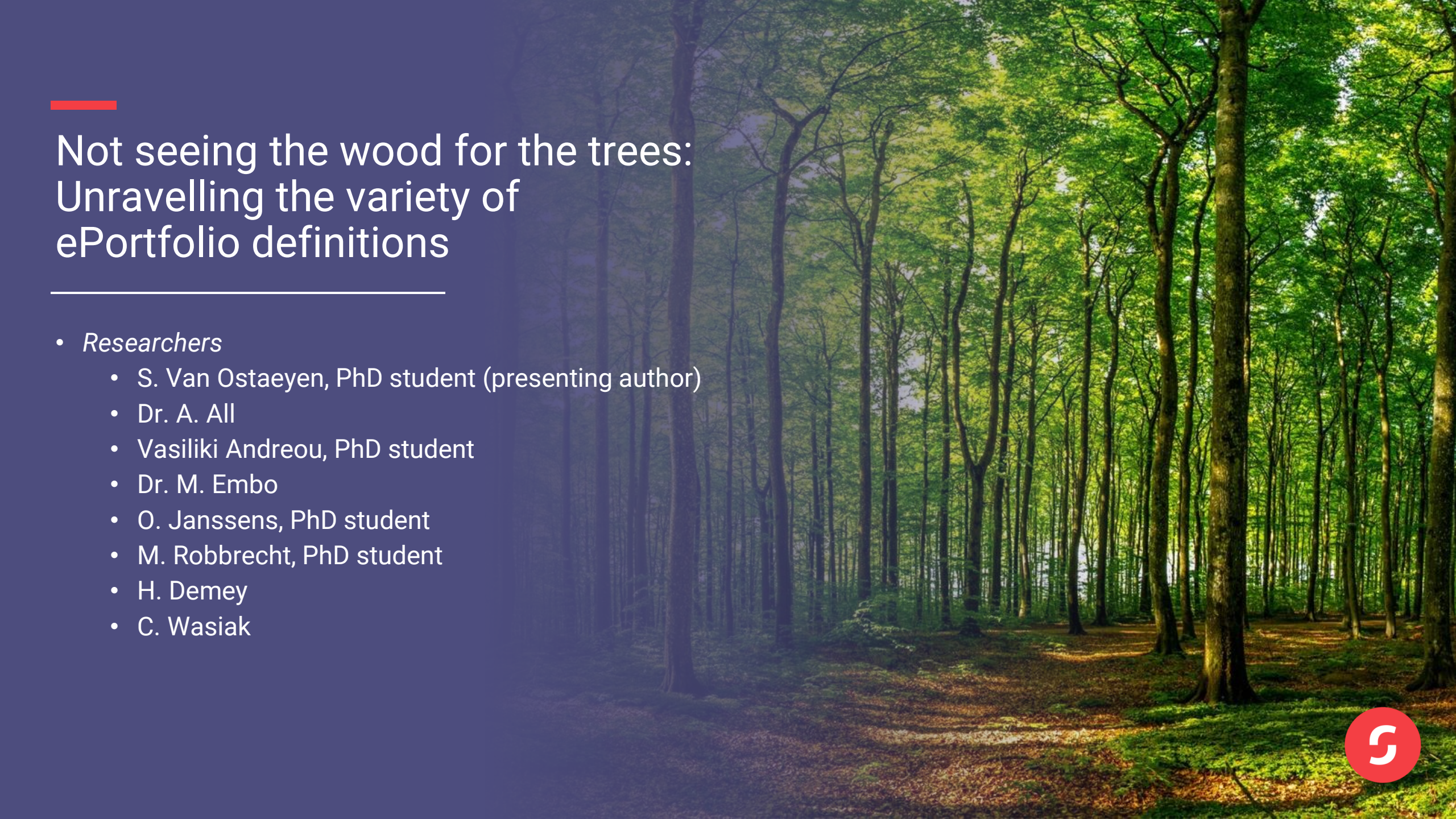


Introduction

- Questions to consider while listening to the different contributors:
  - What definition would you use for an ePortfolio?
  - What legal constraints hinder ePortfolio use in your setting?
  - ePortfolios: one size may not fit all?
  - The same ePortfolio system for all users?
  - Why is the implementation of video not only useful but also urgently needed in medical education?
  - For whom is ePortfolio usage training most needed?
  - Can ePortfolios scaffold competency-based workplace learning in low-income countries?

Not seeing the wood for the trees: Unravelling the variety of ePortfolio definitions

- *Researchers*
  - S. Van Ostaeyen, PhD student (presenting author)
  - Dr. A. All
  - Vasiliki Andreou, PhD student
  - Dr. M. Embo
  - O. Janssens, PhD student
  - M. Robbrecht, PhD student
  - H. Demey
  - C. Wasiak



E-portfolios can also be defined as “personalized, Web-based collections of work, responses
and reflections that are used to demonstrate key skills and accomplishments for a variety of c
and time periods.”[3] While it is impossible to precisely determine how many institutions have a
e-portfolio systems, their adoption continues to grow.[4]

So, whilst it remains somewhat abstract, our conception of en eportfolio is of a system that belongs to the learner, not the institution; populated by the learner not their examiner; primarily
concerned with supporting learning not assess-
for life-long and life-wide learning not a
episode or a single course; that allows learn-
present multiple stories of learning rather
just a simple aggregation of competencies;
importantly, where access to them is
olled by the learner who is able to invite
to support personal growth and under-

utilize the new concept. Eportfolio is defined as ***a personal digital record that supports Lifelong Learning and contains evidence about one’s accomplishments in the form of artefacts which can be provided to whomever the owner has chosen to grant permission***.

competence. The ePortfolio provides the
ehicle that can present a compilation of their
n opportunity for reflection, and demonstrate
tence that provides a link between the
dents gain in the classroom with the
knowledge students gain from the clinical experience

In higher education, e-portfolios may serve as constructivist learning spaces where students can reflect on their own learning journeys; as centralised collections of work on which students can be assessed; and as integrated showcases where students can demonstrate their accomplishments to potential employers. At the same

s of this project, an ePortfolio is seen as a
ons that is curated and managed by the learner
as evidence of their learning and accomplishments, as well as a representation of learners’ personal and professional identities. ePortfolios could also be used for evaluating coursework, assessment, professional

An electronic portfolio (EP) is a digital container capable of storing visual and auditory content including text, images, video and sound. EPs may also be software tools not only because they organize content but also because they are designed to support a variety of pedagogical processes and assessment purposes. EPs are gaining in popularity not only

Objectives

- Not 1 universal definition
- Existing classification systems are not all-encompassing
- In-depth analysis of ePortfolio definitions, independent of ePortfolio classification systems:
  - Recurring elements?
  - Frequently used concepts?

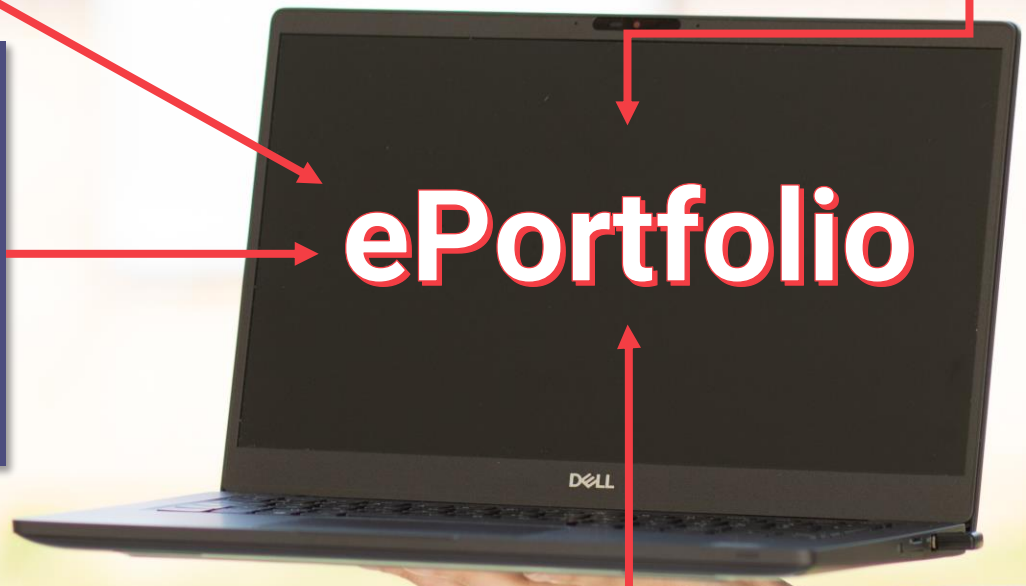
Methodology

- Analysis of 37 definitions
- Found in articles published between 1996 and 2017
- Thematic analysis
- Coded inductively

Metaphor
- -Collection (36%)
- -(Guidance) Tool (8%)
- -Container (6%)
- -Repository (6%)

Adjective
- -(Highly) Personal(ised) (14%)
- -Digital (14%)
- -Purposeful (8%)
- -Systematic (6%)

Content of the ePortfolio
- -(digital) artefacts (36%)
- -(a compilation of) Work (17%)
- -Information (17%)
- -Reflections/reflective statements (8%)
- -Authentic and diverse evidence (6%)



Stakeholders (most common)
- -Student (36%)
- -Learner (17%)
- -One(self) (11%)

Results

Recurring concepts

- Learning
- Reflection
- Evidence

Definition Scaffold ePortfolio

The Scaffold ePortfolio is a digital, learner-centered tool that documents, scaffolds, visualizes and proves (future) healthcare professionals' continuous competency development during workplace learning. It facilitates and fosters the learning cycle of goal setting, reflection, feedback and (self-)assessment, as well as the interaction between all actors. The ePortfolio optimally uses smart multimedia technology to ensure an easy (=user-friendly), fast (= efficient), safe and regulatory compliant usage.

References

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Policy, Legislation and Ethics

- *Researcher and presenting author*
  - C. Wasiak
- *Supervisor*
  - Prof. dr. E. Lievens

Rationale

- **Personal and multimedia data** from many actors (students, fellow students, teachers, patients, other third parties) are **collected, processed and stored** in an e-Portfolio
  - ePortfolio studies hardly focus on **legal issues** or ethical standards.
  - Variety of legal questions:
    - Intellectual property
    - Privacy
    - Data protection
    - Professional confidentiality.

Goal

- A comprehensive '**Legal Compliance Framework**' that takes into account different perspectives (education and healthcare) and stakeholders (students, teaching staff, workplace supervisors).

- '**Code of Ethics**' where ethical and deontological questions when implementing e-Portfolios will be articulated, and included in.

Progress

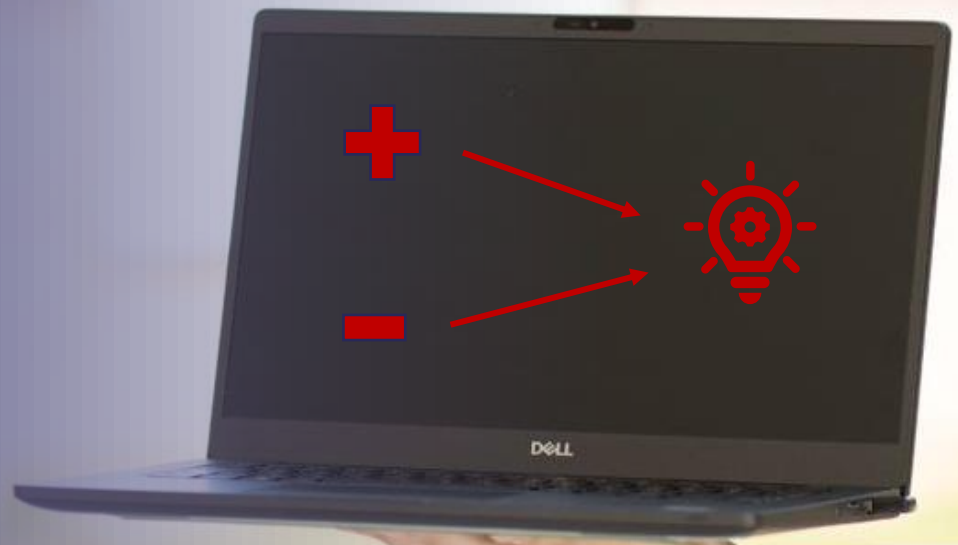
4 reports have been written:

- **Report 1**: A data protection analysis of the different actors within the SCAFFOLD-ePortfolio.
- **Report 2**: The legal basis for the processing of personal data (concerning health) within the SCAFFOLD-ePortfolio.
- **Report 3**: The integration of video/audio-recordings in the SCAFFOLD-ePortfolio: a data protection analysis of consent given by the care demander (client/patient).
- **Report 4**: The protection of the duty of professional confidentiality of the care giver when using the SCAFFOLD-ePortfolio.

  - ➢ Integrated in an eLearning module that accompanies the SCAFFOLD-ePortfolio
  - ➢ Journal publication regarding the compliance framework

The benefits, challenges, and recommendations regarding ePortfolio use in healthcare education

- *Researcher*
  - O. Janssens, PhD student
- *Supervisors*
  - Prof. dr. L. Haerens
  - Dr. M. Embo
  - Prof. dr. M. Valcke



Background

An ePortfolio…

- Increasingly **important** in healthcare education
- Replaces the **paper portfolio**
- Supports **work-integrated learning**
- ↑ **collaboration** and **communication**
- Supports **learning processes**
- Student's **progress**

But...

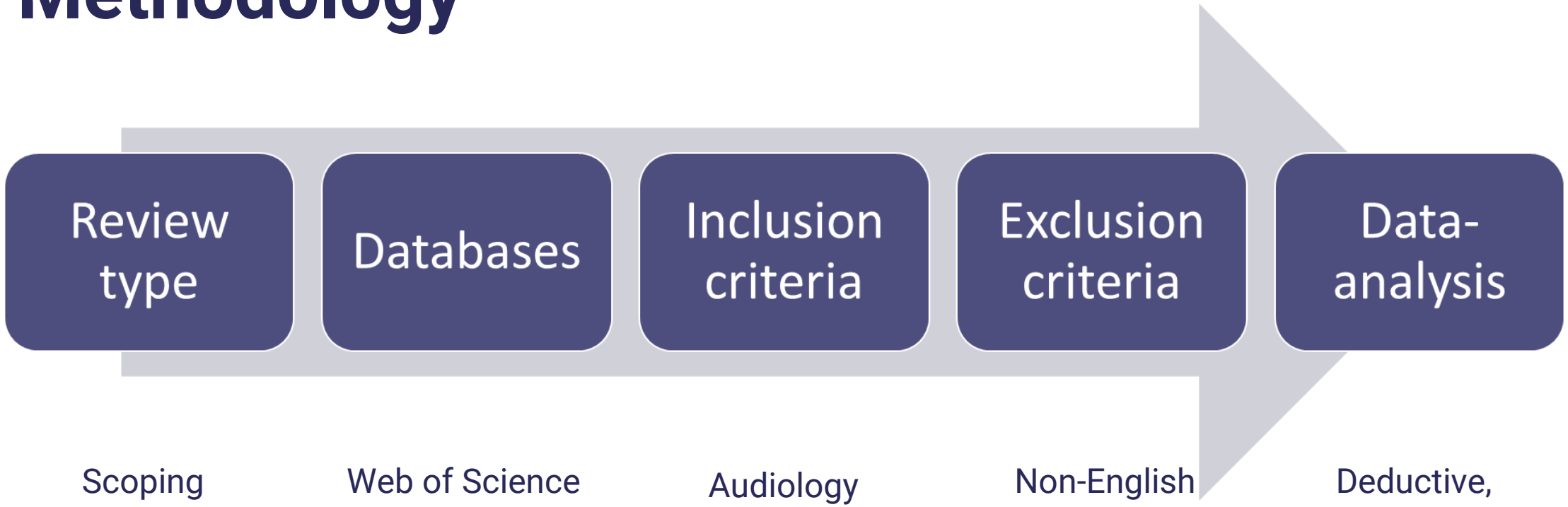
Debate about ePortfolios'...

- **Impact**
- **Effectiveness**
- Integration in the **curriculum**
- **User training** and **usage procedures**
- Proof of **competency mastery**
- Caption of the **educational continuum**

Research question

What is the role of an ePortfolio in supporting learning in eight undergraduate healthcare disciplines?

Methodology



Results

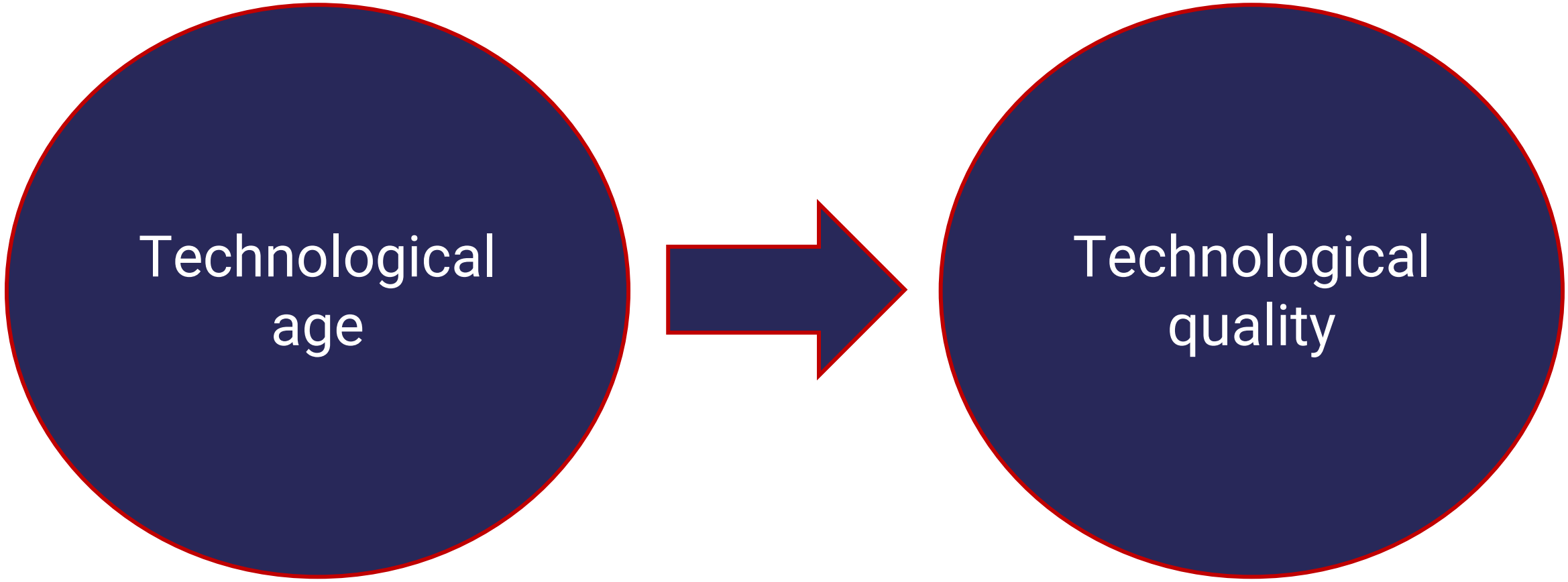
Contexts

- Learning at educational institutions (n=14)
- Learning at the workplace (n=17)
- Both (n = 6)

Research populations and samples

- Students (n=25)
- Educators and students (n=5)
- Mentors and students (n=1)
- Mentors (n=1)
- Graduates (n=4)

Benefits and challenges



+++	---
Close theory-practice gap	Complex
Preventing losing documents	Tedious
Reduced printing	Navigation
Increased security	General appearance

Collaboration

+++
Regardless of time, location, or discipline
Connection with peers
Implementation as EMR
Joint planning of patient care

Low trust in educators

Employment

Time investment

+++
Competence mastery
Show achievements and philosophy
Readiness-for-the-profession

Recommendations

Technology

- Engage **ePortfolio users** in the ePortfolio design
- Do not introduce too many **functions** to mentors
- **Integrate** the ePortfolio platform with the **learning platform**
- Implement the ePortfolio in the **early years of education**

Recommendations

Competency development

- Do not only provide **summative feedback**
- Provide a more **open format** for reflection
- Make **marking rubrics** more **descriptive** so that both students and educators know what was required at each level
- Use ePortfolios not only for assessment but also to support **CPD**

Recommendations

Discussion

- **Perceptions** (n=32) and evaluation of **implementation** (n=21)
- **Sample and population**
- '**One size** may not fit all'?
- Focus on **technology** rather than **content**
- **Competency development** is little investigated
- Quality of **patient care**?

Thank you!

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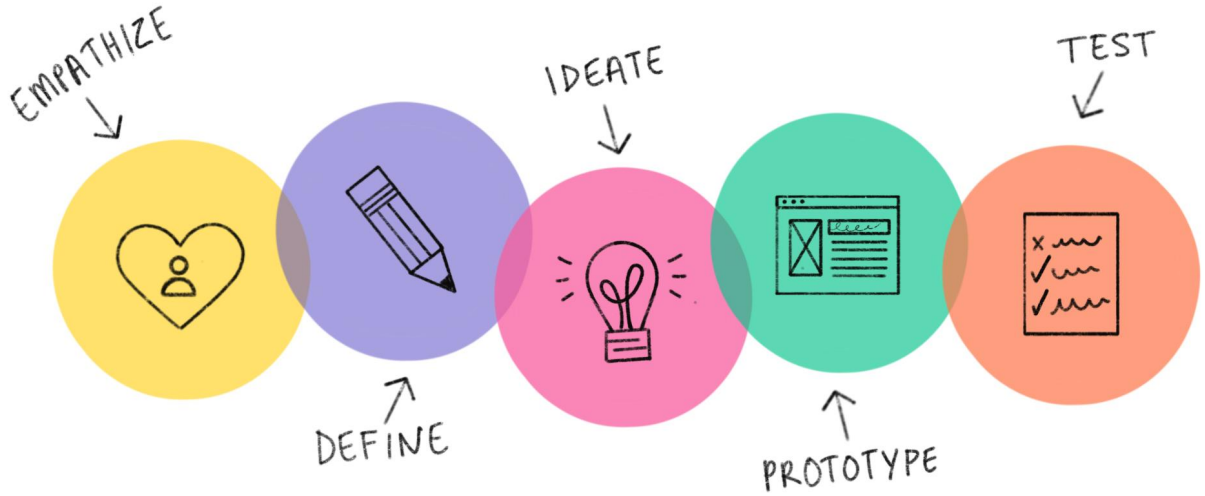
User-centered design of ePortfolios in healthcare

- *Researcher and presenting author*
  - Dr. A. All
- *Promotor project*
  - Prof. dr. L. Demarez

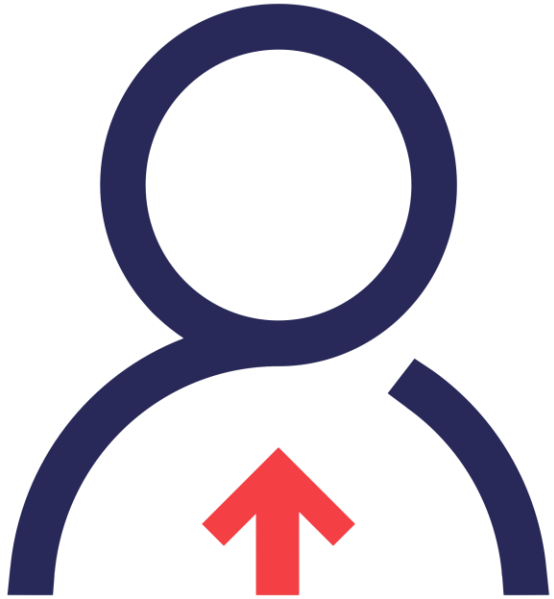
User-Centered Design



Bottom-up approach

End-user = partner

Design thinking

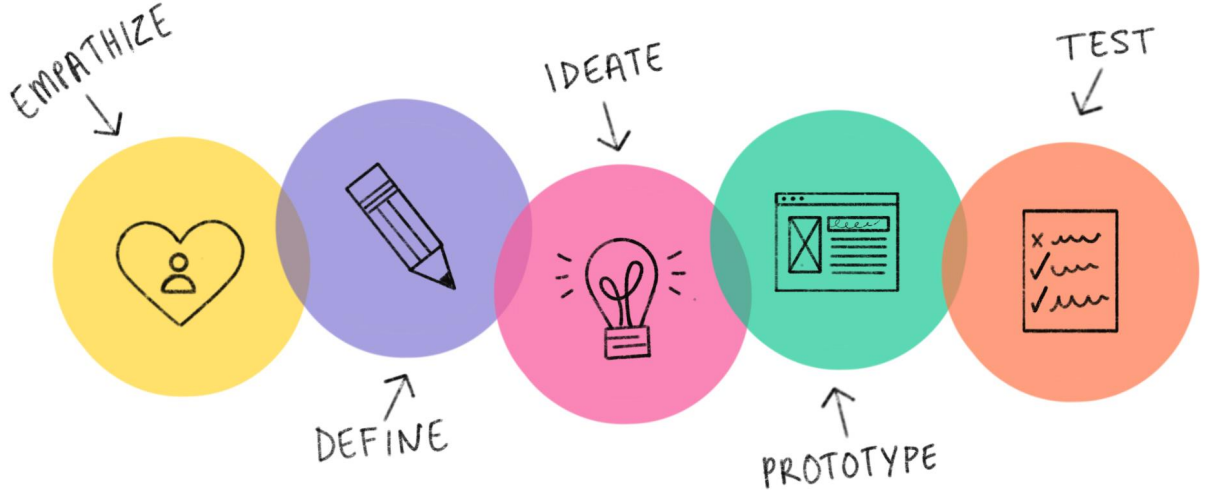


Design Thinking

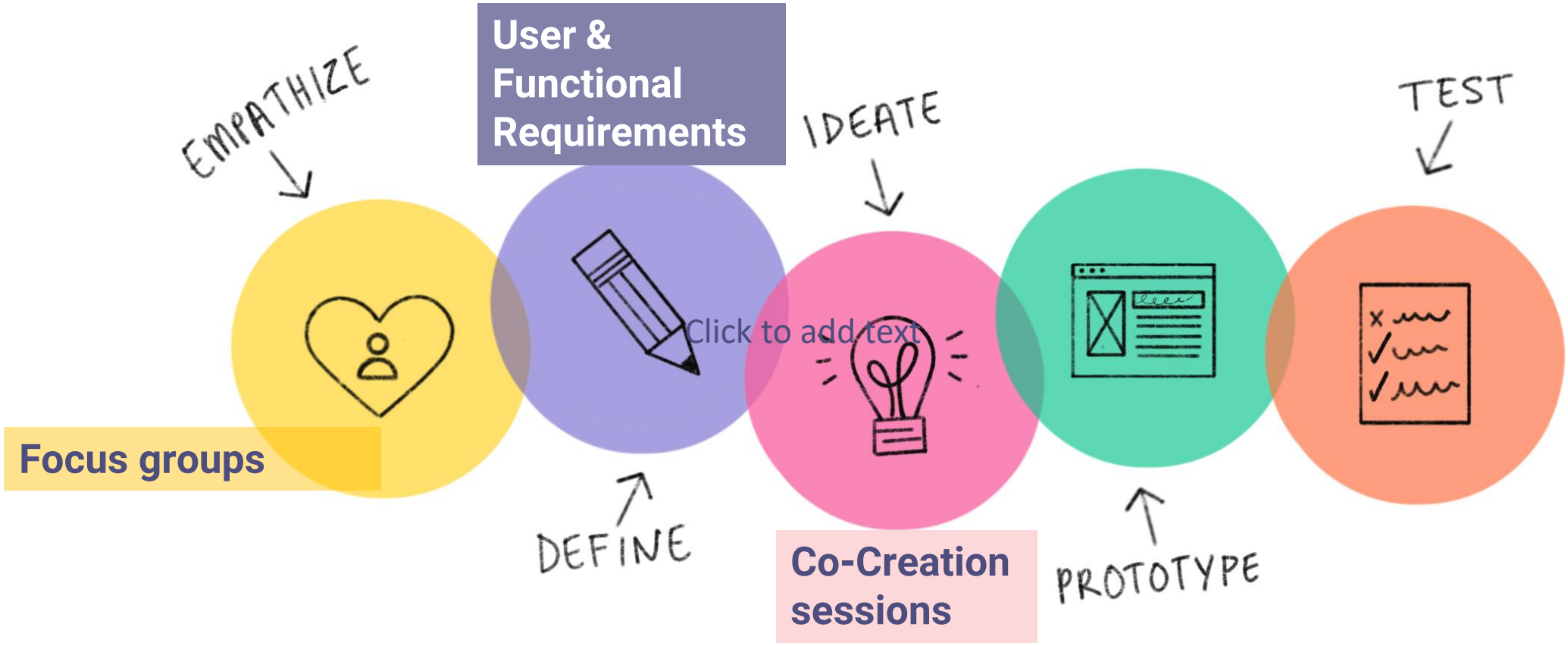
Empathize with the end-user, understand who they are and what their points-of-pain and needs are.

Define problems, best practices and requirements

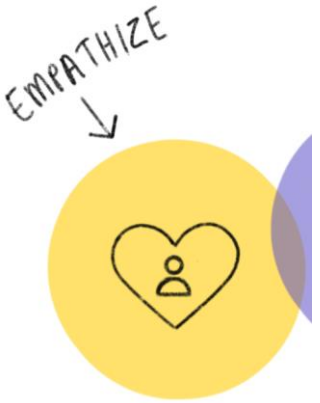
Ideate solutions



UCD/ Design thinking methods



Focus groups



End-user =

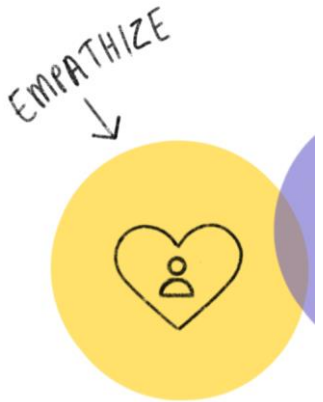
- Student
- Workplace mentor
- University/College mentor

Educational programs:

- General Practitioners (online)
- Specialist Medicine (online)
- General healthcare (real-life)

9 focus groups

Focus groups



Specialist Medicine

Online focus groups
34 medical assistants (2 focus groups)
9 workplace mentors

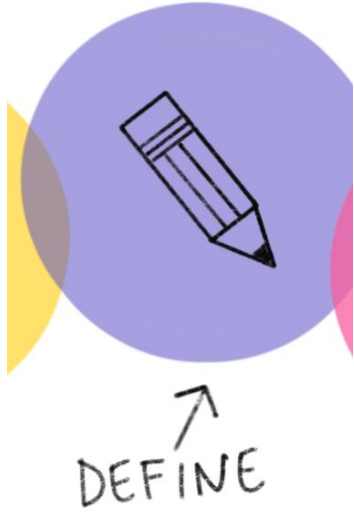
General practitioners

Online focus groups
8 internship coordinators
6 students
4 workplace mentors

General Healthcare

Real-life focus groups
5 internship coordinators
5 students
5 workplace mentors

Define problems, best practices, user & functional requirements

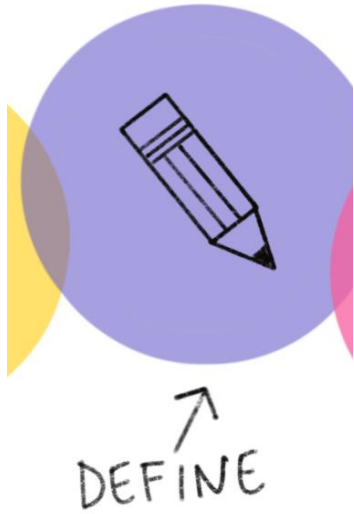


- Based on analysis focus groups

- *User requirements =*
- *end-user requirements for a system (i.e., must be quick)*

- *Functional requirements =*
- *what a system should do (i.e., stay automatically logged in)*

Results focus groups

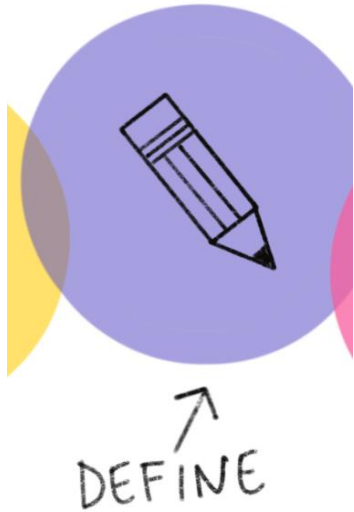


Main problems:

1- **Lack of time** (e.g., writing feedback, document evidence for learning and making reflections)

2 -**Textual input** is time consuming

Results focus groups



Main problems:

1- **Lack of time** (e.g., writing feedback, document evidence for learning and making reflections)

2 -**Textual input** is time consuming

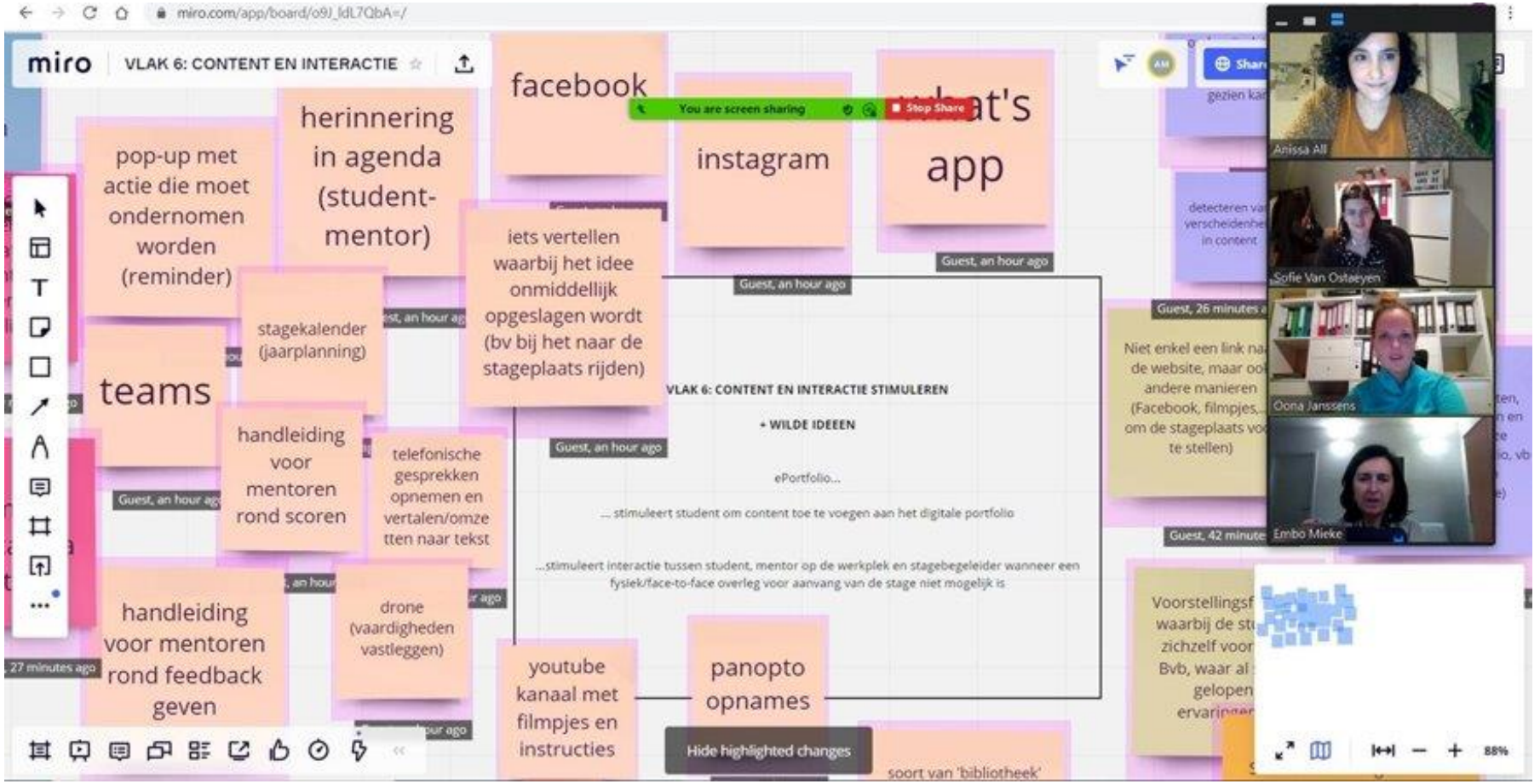
3. Less Qualitative Feedback

4. Superficial reflections

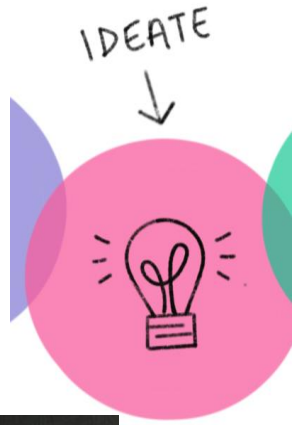
5. Information loss during work day

Co-creation sessions

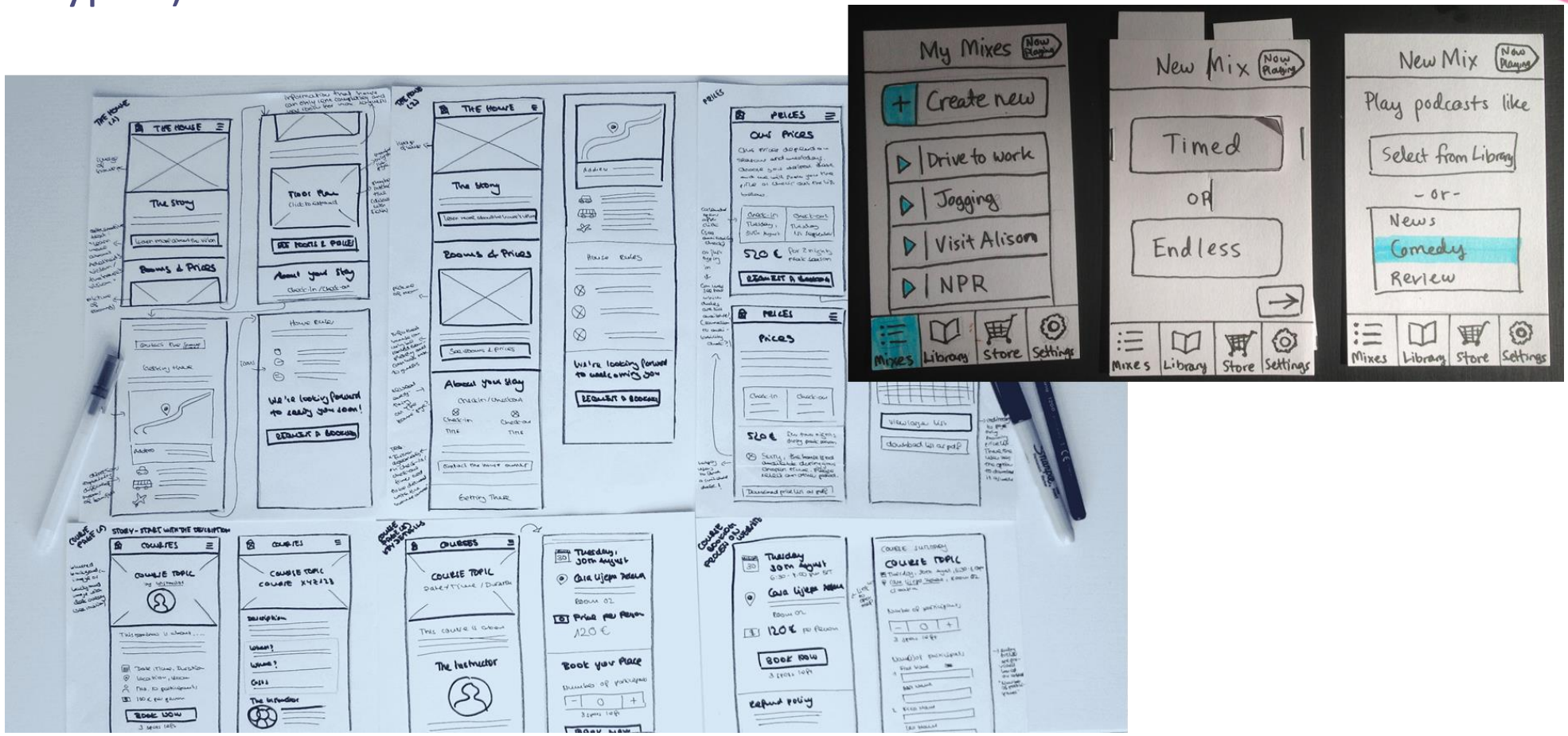
- Step 1: gather as much ideas as possible to solve problems



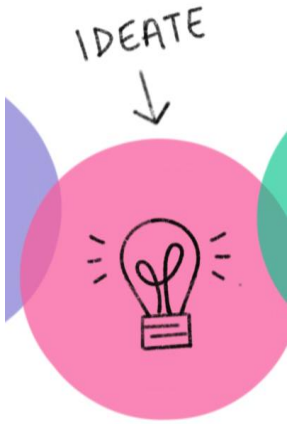
Co-creation sessions



- Step 2: 'top rated' ideas are worked out in more detail (i.e., 'paper prototypes')



Results Co-creation sessions



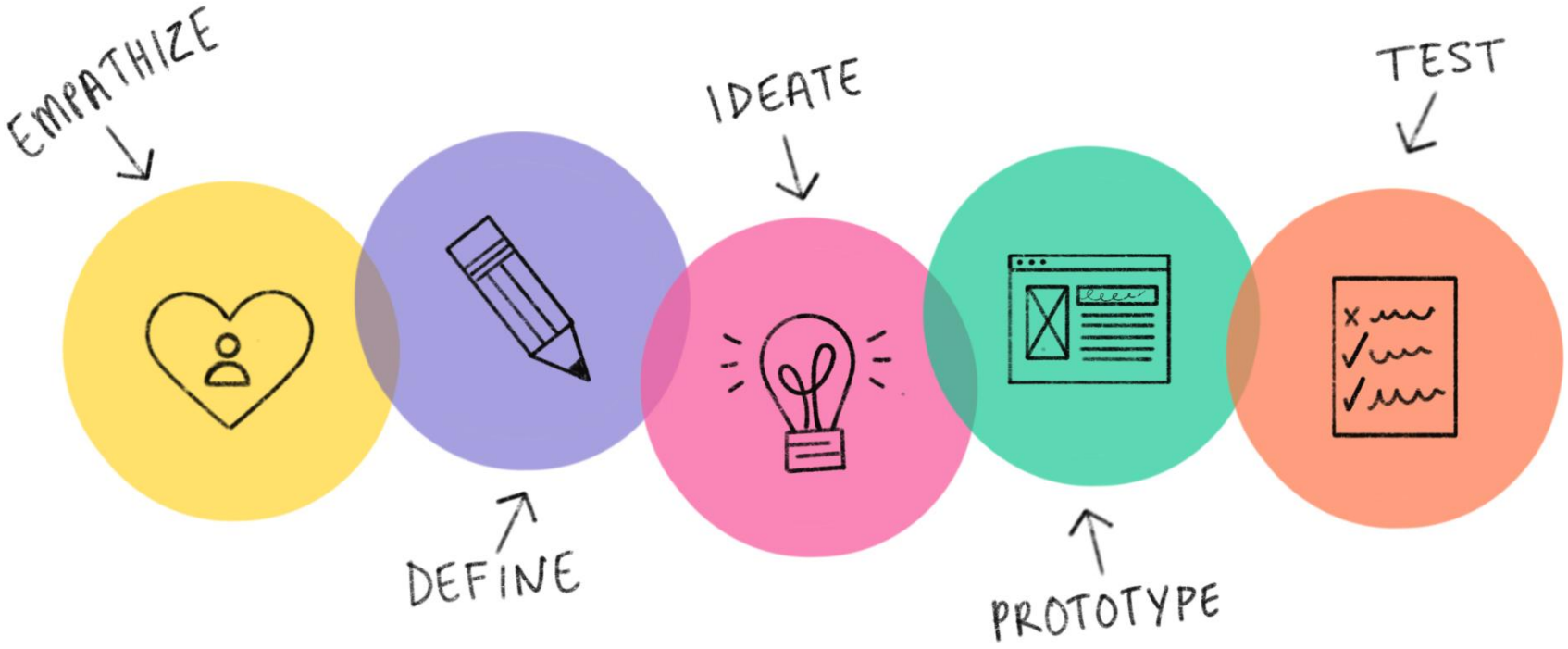
Possible Solutions: Focus more on capturing *during* the workday

1- wearable that captures spoken feedback

2- STT transcription

3- wearable that allows student to capture learning moments through AV content

Next steps



When learning takes place outside of the classroom: using video recording during workplace learning.

- *Researcher and presenting author*
  - M. Robbrecht, PhD student

- *Promotors*
  - Prof. dr. K. Norga
  - Prof. dr. M. Van Winckel
  - Prof. dr. M. Valcke
  - dr. M. Embo

Medical education

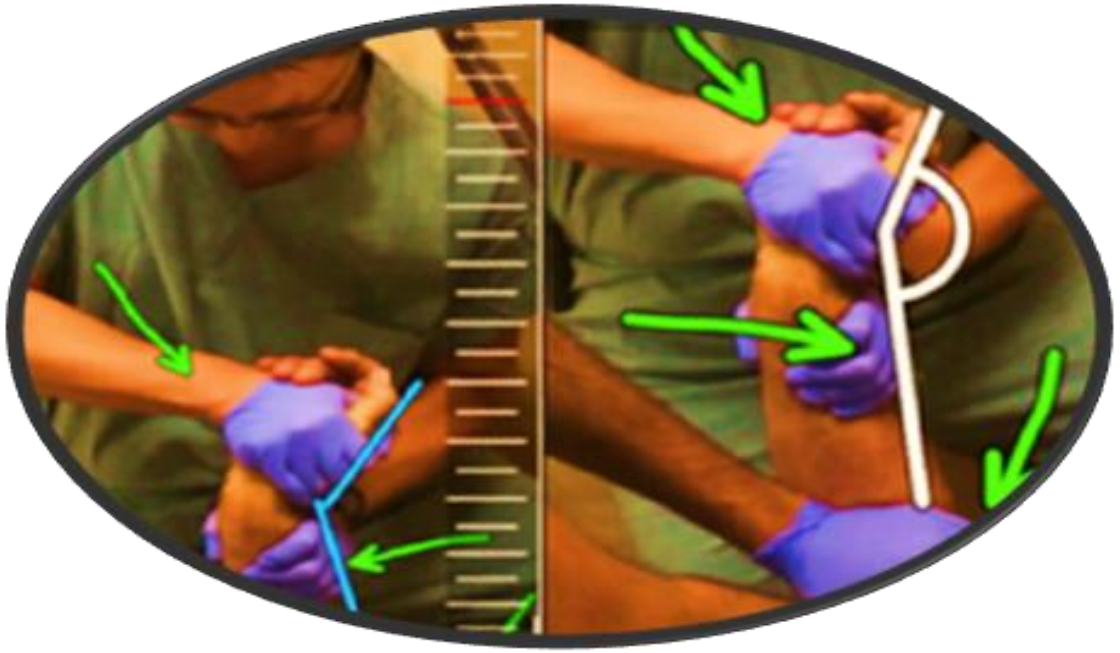
- Undergraduate: classroom learning
- Postgraduate: workplace learning

Postgraduate medical education

Unpredictability

Accountability

Why is video useful?



Why is video needed?

External FB	• Authentic environment • Specificity and objectivity
Internal FB	• Lower cognitive load • Improved self-reflection
Additionally	• Focus on multiple competencies • Learning from watching

Why is video needed?

To maximize learning opportunities

To optimize medical education

To provide safe healthcare

Implementation

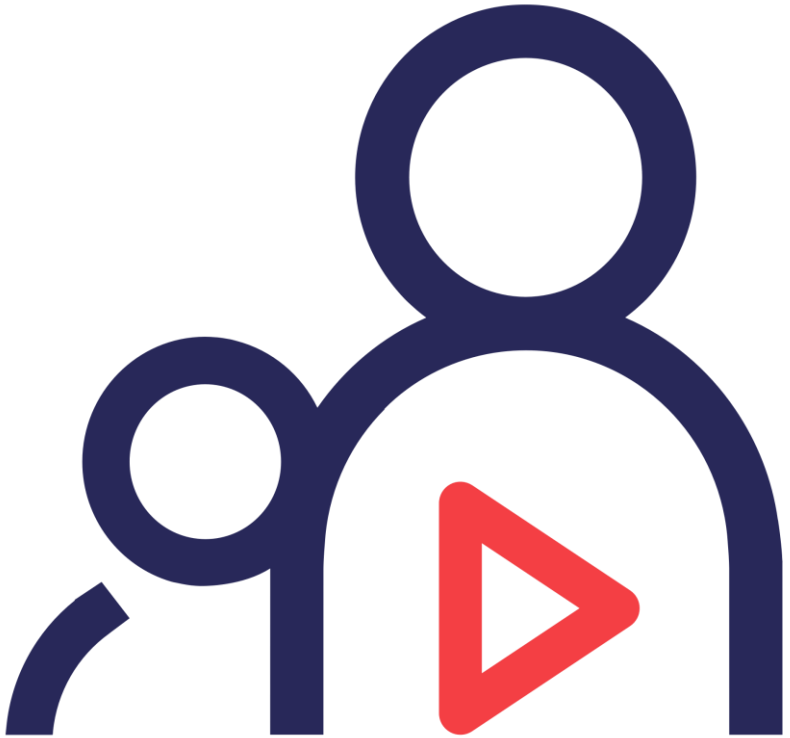
Learning effect
Self feedback

Added value
Peer & Expert feedback

Feasibility

Wrap up:

Why is the implementation of video not only useful but also urgently needed in medical education?



Thank you!

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Training to support ePortfolio users: an overview of training initiatives and their outcomes

- *Researcher and presenting author*
  - S. Van Ostaeyen, PhD student

- *Promotors*
  - Prof. dr. T. Schellens
  - Prof. dr. M. Valcke
  - dr. M. Embo

Background

- Proper implementation is crucial
- Barriers
  - Reducing positive effects of ePortfolios
  - Hindering users' motiviation to use the tool
- ePortfolio user training

Aim

- EPortfolio user training initiatives are rarely evaluated
- Fragmented literature
- Integrated overview is missing
- Ambiguity about training design

- Research aim: to consolidate evidence about ePortfolio user training

Methods

- Scoping review
- Framework Arksey and O’Malley (2005)

Methods

1

Research question

What is known about the design and outcomes of training initiatives to support students, teachers and clinical mentors in their use of ePortfolios during clinical placements in higher healthcare education?

Methods

1 **Research question**

2 **Identifying relevant studies**

‘ePortfolio’, ‘training’, ‘implementation’, ‘introduction’, ‘pedagogy’, ‘learning model’

Methods

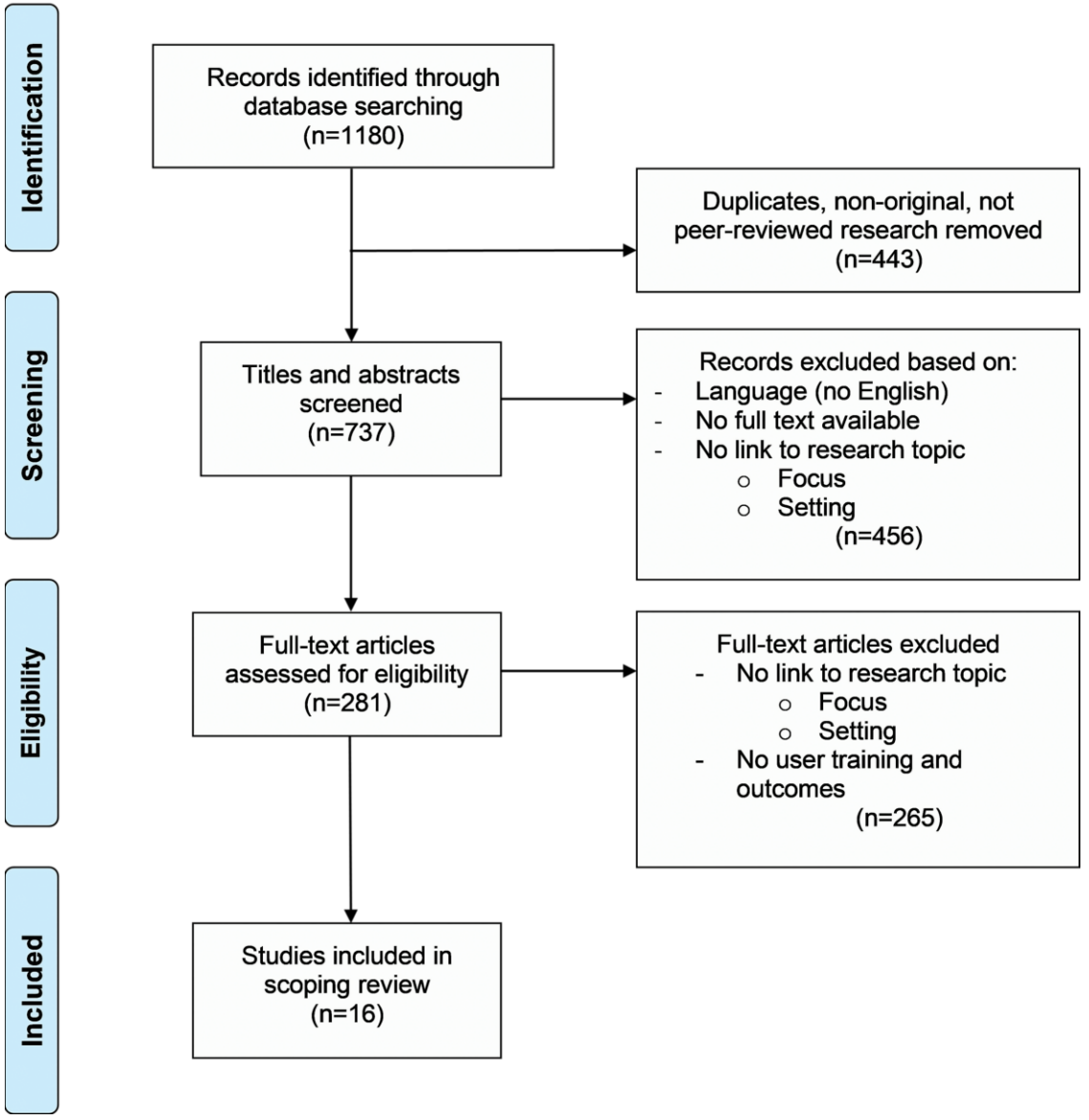
1 **Research question**

3 **Selecting studies**

2 **Identifying relevant studies**

Methods

3


Identification
Screening
Eligibility
Included
Records identified through database searching (n=1180)
Duplicates, non-original, not peer-reviewed research removed (n=443)
Titles and abstracts screened (n=737)
Records excluded based on:
- Language (no English)
- No full text available
- No link to research topic
o Focus
o Setting
(n=456)
Full-text articles assessed for eligibility (n=281)
Full-text articles excluded
- No link to research topic
o Focus
o Setting
- No user training and outcomes
(n=265)
Studies included in scoping review (n=16)

Methods

1 Research question

3 Selecting studies

2 Identifying relevant studies

4 Charting the data

Methods

1. **Research question**
2. **Identifying relevant studies**
3. **Selecting studies**
4. **Charting the data**
5. **Collating, summarizing and reporting results**
   Thematic analysis

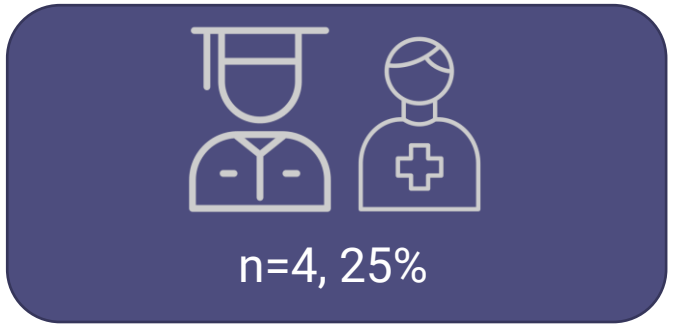
Results

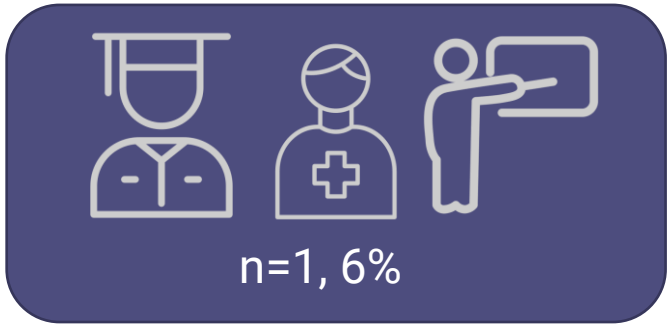
- Research aims of included studies
  - 1) to explore and examine perceptions of ePortfolio users (n=9, 56%)
  - 2) to design, develop, implement and evaluate an ePortfolio (n=5, 32%)
  - 3) to explore ePortfolio utilization (n=2, 13%)

→ Research hardly focuses on ePortfolio user training

Results

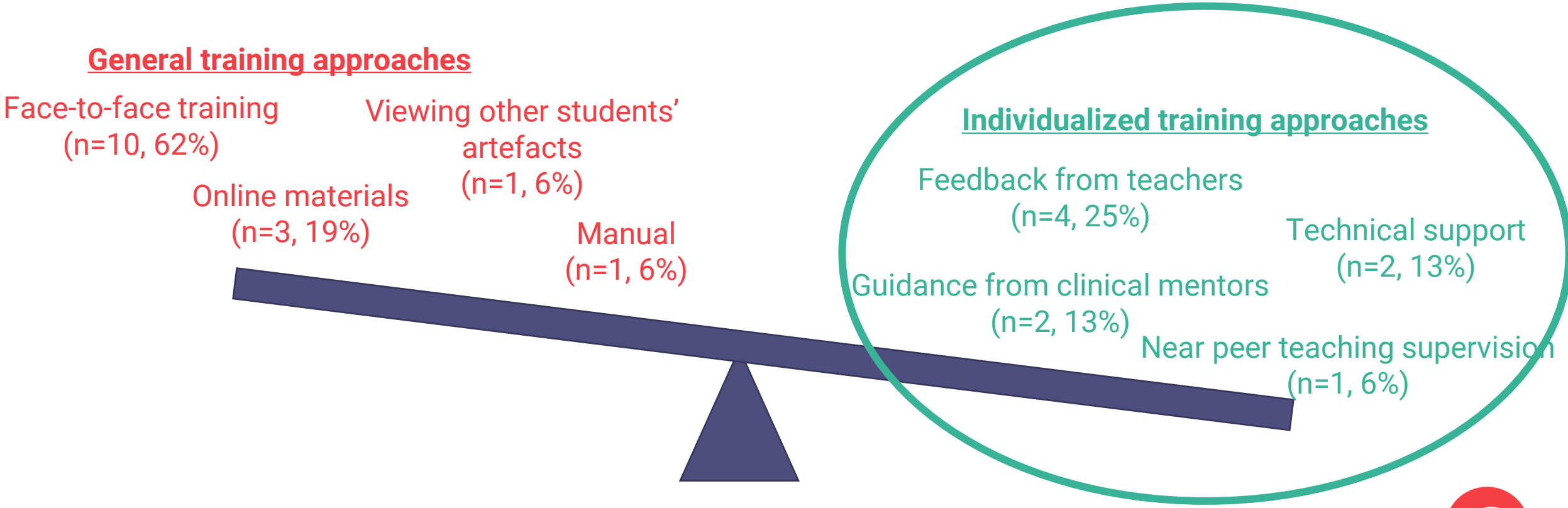
- Target audience of training initiatives





Results

- User training initiatives



Results

- Training evaluation
  - 1) systematically: items in survey or interview guide (n=8, 50%)
  - 2) organically: emerged as theme from collected data (n=8, 50%)

→ Evaluation on satisfaction level

No focus on training efficacy or effectivity

Discussion and conclusion

- Individualized, ongoing training approach grounded in theoretical framework and tailored to needs of specific user groups
- Need for
  - more research focusing on ePortfolio user training and outcomes: experimental designs
  - research investigating efficacy and effectivity of user training
  - more and tailor-made training initiatives for teachers and clinical mentors

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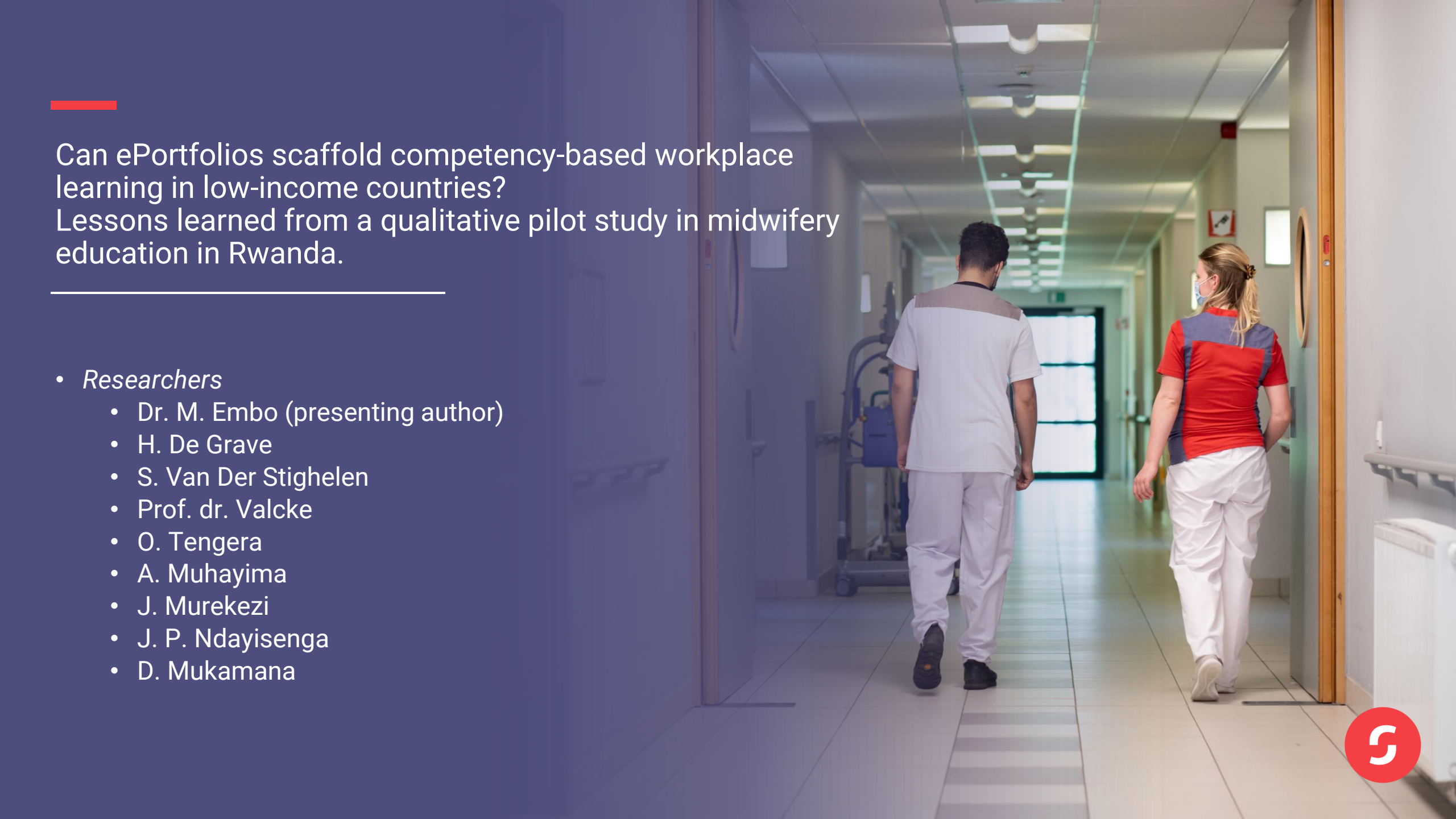
Can ePortfolios scaffold competency-based workplace learning in low-income countries? Lessons learned from a qualitative pilot study in midwifery education in Rwanda.

- *Researchers*
  - Dr. M. Embo (presenting author)
  - H. De Grave
  - S. Van Der Stighelen
  - Prof. dr. Valcke
  - O. Tengera
  - A. Muhayima
  - J. Murekezi
  - J. P. Ndayisenga
  - D. Mukamana

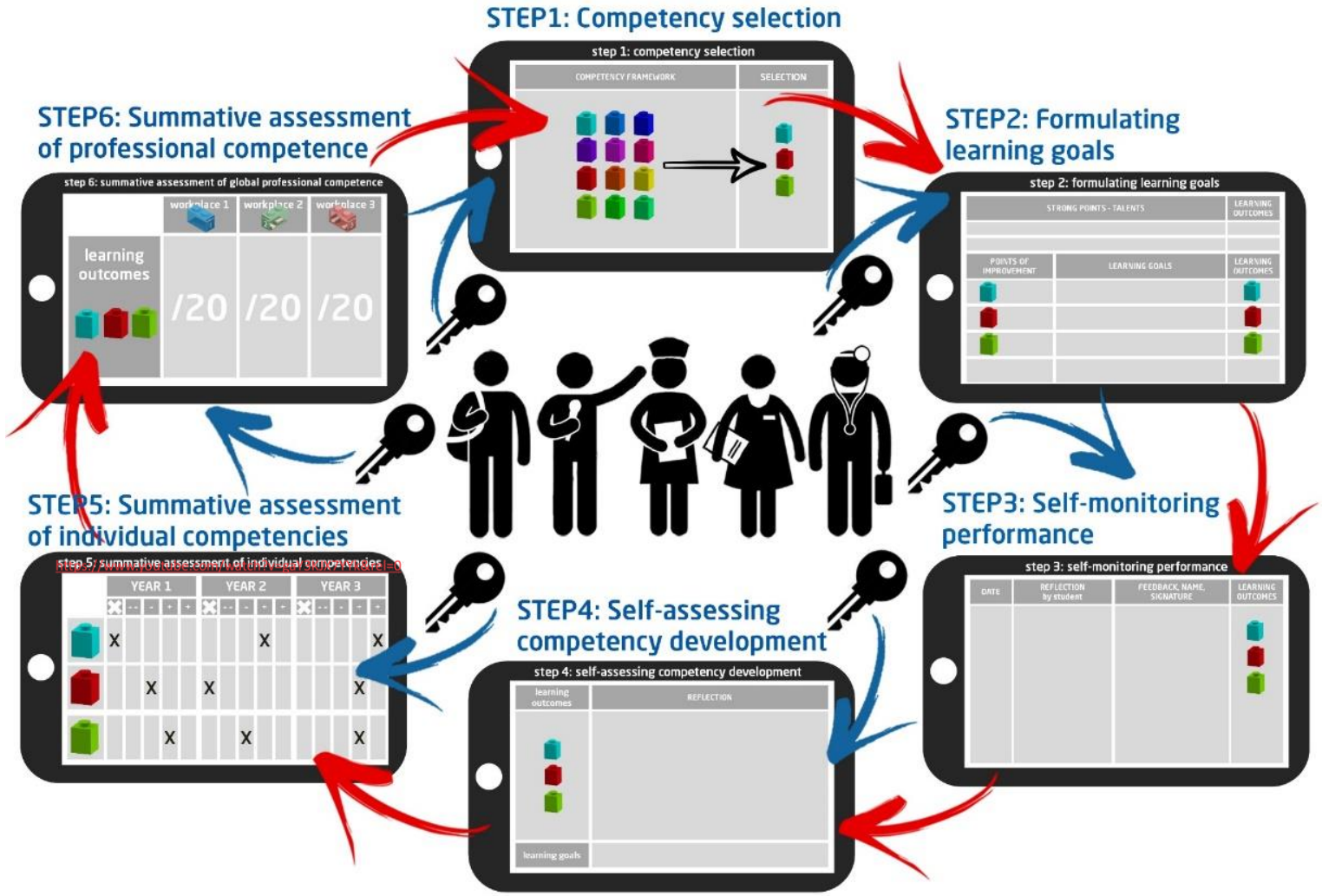


Can ePortfolios scaffold competency-based workplace learning in low-income countries???

Background Rwanda

- Shortage of healthcare professionals (HLMA Report, 2019)
- Lack of midwifery experts in clinical teaching (HRH Program, 2016)
- Theory-practice gap in maternal and child healthcare
- Inconsistency of clinical expectations between classroom and clinical practice settings (Uwizeye et al., 2017)

E-Portfolio: Continuous Workplace Learning Competency model



https://www.youtube.com/watch?v=gaY3KJX7YYk&rel=0

http://pub.maastrichtuniversity.nl/700fdd2c-b660-48cf-ad32-2a9f4effff95

Medbook.

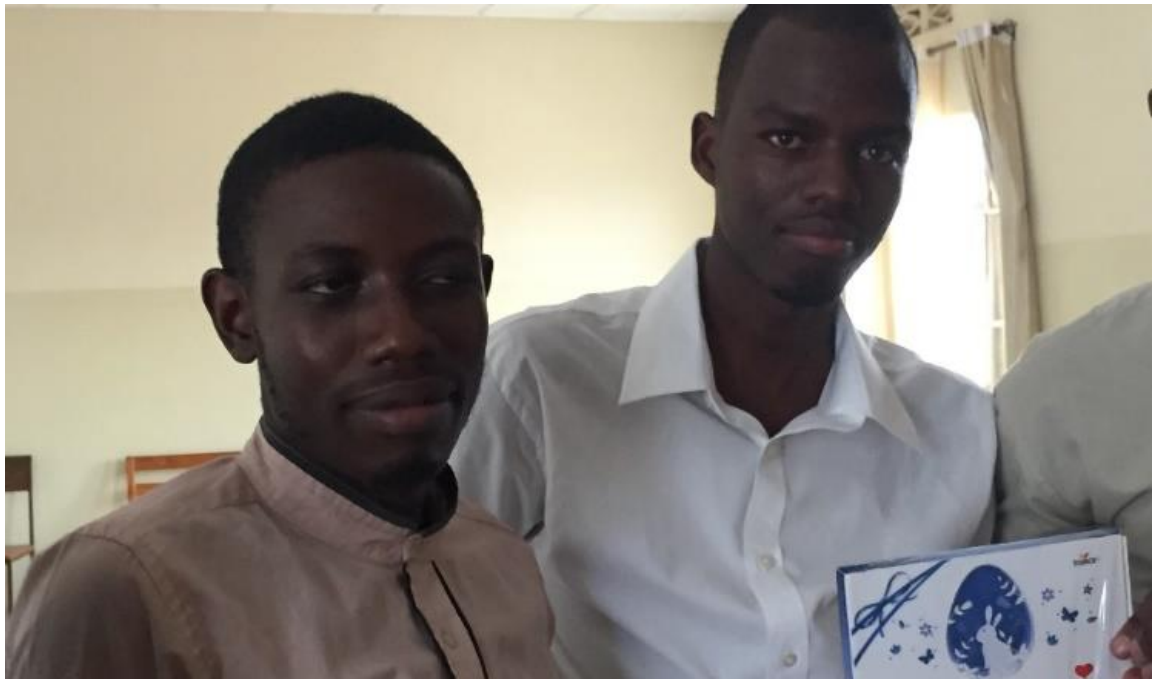
Username

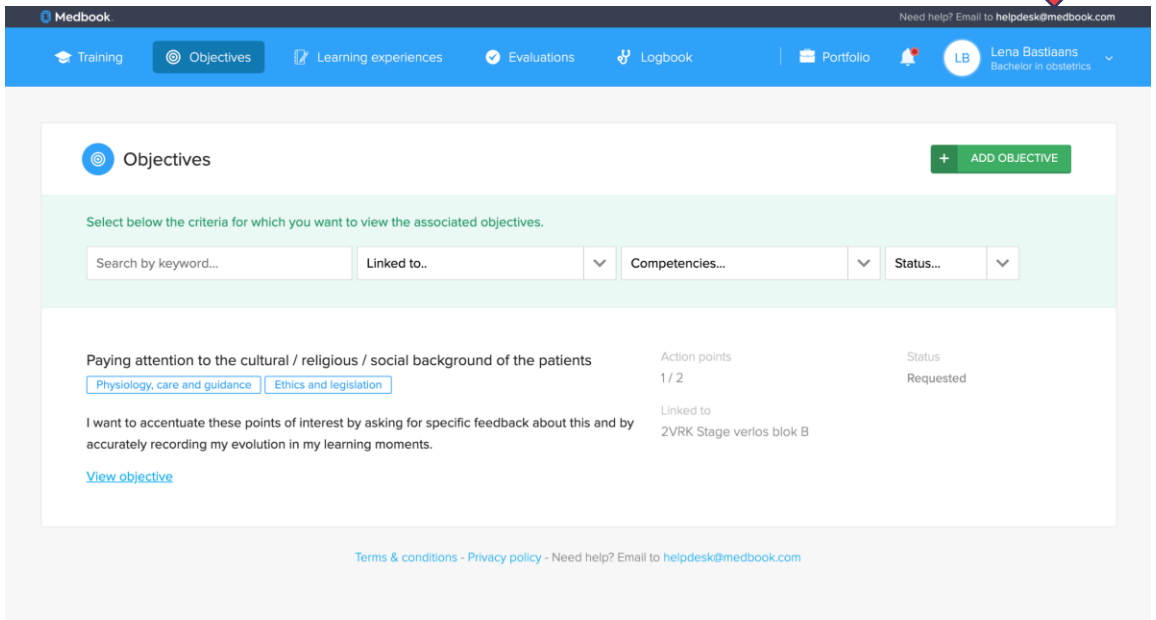
Password

LOG ME IN

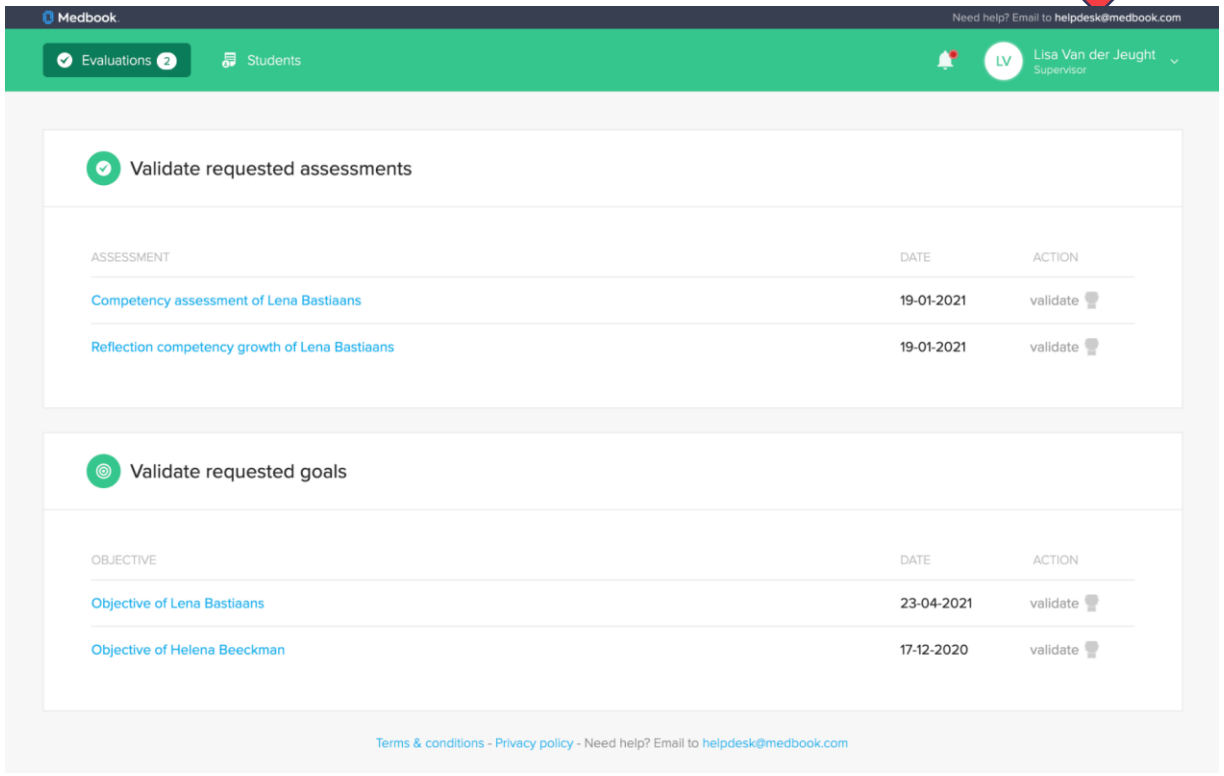
Lost your password?

STUDENT’s VIEW





Supervisor’s view



Objective

To explore supervisors', mentors' and students' perceptions on the use of a clinical portfolio

- Paper-based portfolio
- E-Portfolio

Results

Continuous online accessibility improved

- interaction between student & mentor (workplace)
- collaboration between mentor (workplace) & supervisor (university)

Connection with the digital world

- User-friendly tool
- Enhanced IT-competencies
- Easier for students than for mentors/supervisors

Results

Time-effective

- Less time to complete ePf and ‘no time’ to print, send, store or search documents
- ePf can be completed from all places
- Time-independent
- Place-independent
- Immediate feedback provision (“quick learning”)

Cost-effective

- Lower Internet cost
- No printing costs
- No travel costs

Safe and lifelong storage

Results
Essential conditions: devices

Students

- Not all students have a computer
- Almost all students have a phone, but typing on phones is harder because of a lower typing speed and a less clear screen
- Students share devices

Mentors

- Shortage of computers in hospitals
- Mentors share computers

Supervisors

- Some have a private laptop
- The university should provide portable computers or a computer at the workplace (safer)

Results
Essential conditions: Internet

Most students had no Internet access

"… like we buy internet data and connect, or we arrange a time like in the extra time to use the hospital wifi… (R1, student)".

"The Internet…. We ask the hospital-password to connect, but also that is a challenge. When the number of connections increases, the Internet speed decreases (R1, student)".

Recommendation

- Provide at least one room with computers and internet at the university

Results
Essential conditions: Motivation & Time

- Lack of time due to high workload
- Nevertheless, highly motivated
- During free time for students and supervisors

  “Yes, I work during the day, but as you know the day is overloaded. So I use my free time after work (R6, mentor)”;

  “…As the time is limited I try to use my time when I am home or in the weekends to go through the portfolio and try to give the feedbacks to students (R4, supervisor).”

Results
Essential conditions: Feedback

- ePf doesn't solve the feedback problem
- Problematic quality of feedback

  "I received to do' s about the procedure (R1, student)"

- Problematic quantity of feedback
- Feedback teachers > mentors

Results
Essential condition: Training

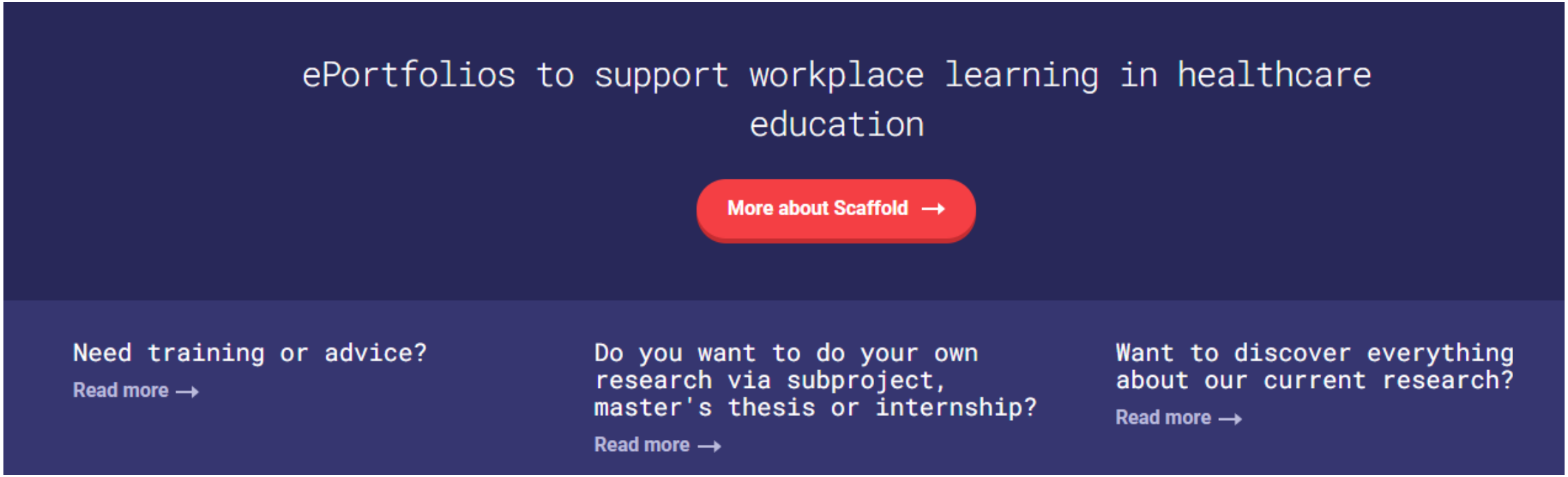
- ePf-users must be trained
- Start with students → well-trained students can train their mentors and supervisors and stimulate peer learning in the team
- Adapt training to the user's expertise level
- Support from management

Conclusion

- ePf can succesfully scaffold competency-based midwifery education
- All participants preferred an ePf>PBP
- The success is strongly dependent on the extent to which essential conditions are met

Next steps

- UR explores open-source platforms e.g Moodle
- International and Digital Workplace Learning Network e.g. Uganda
- ePf-research project: www.sbo-scaffold.com/en



Thank you!

https://www.sbo-scaffold.com/en

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