



Co-funded by the
Erasmus+ Programme
of the European Union

Activate

Agile Competency based learning for Individuals And Teams

User-centered Design of App-assisted Feedback Portfolio Technology
for Individual Deliberate Practice in Health Professional Education

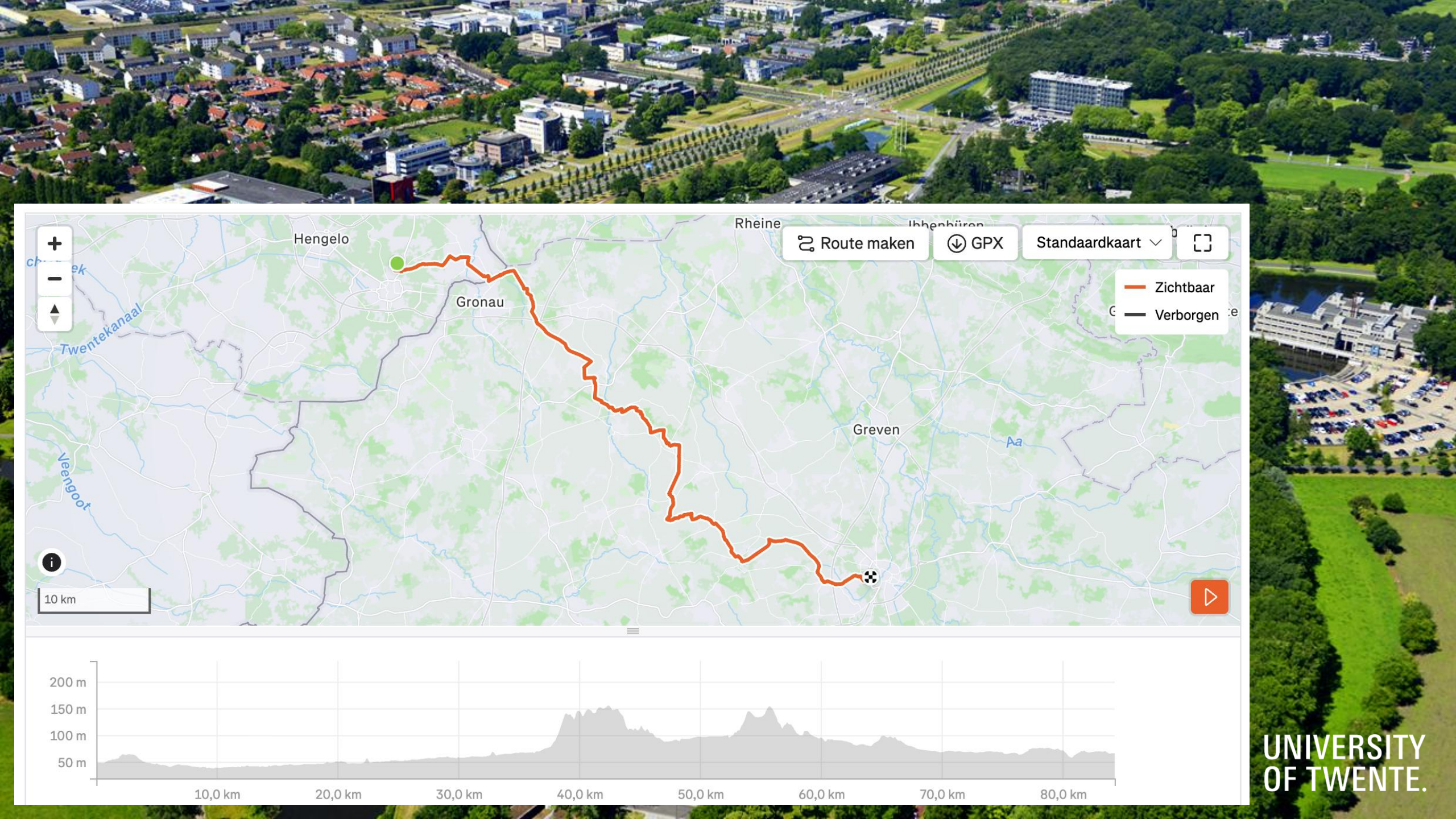
Münster, 2. June 2026

Symposium

Jan-Willem van 't Klooster, Teodora Spirova, Elvis Vrolijk, Andre Bester, Xir Klein Breteler, Lotte Driessen
Friedrich Pawelka, Hendrik Ohlenburg, Bas de Leng







10 km

Route maken

GPX

Standaardkaart



Zichtbaar
Verborgen



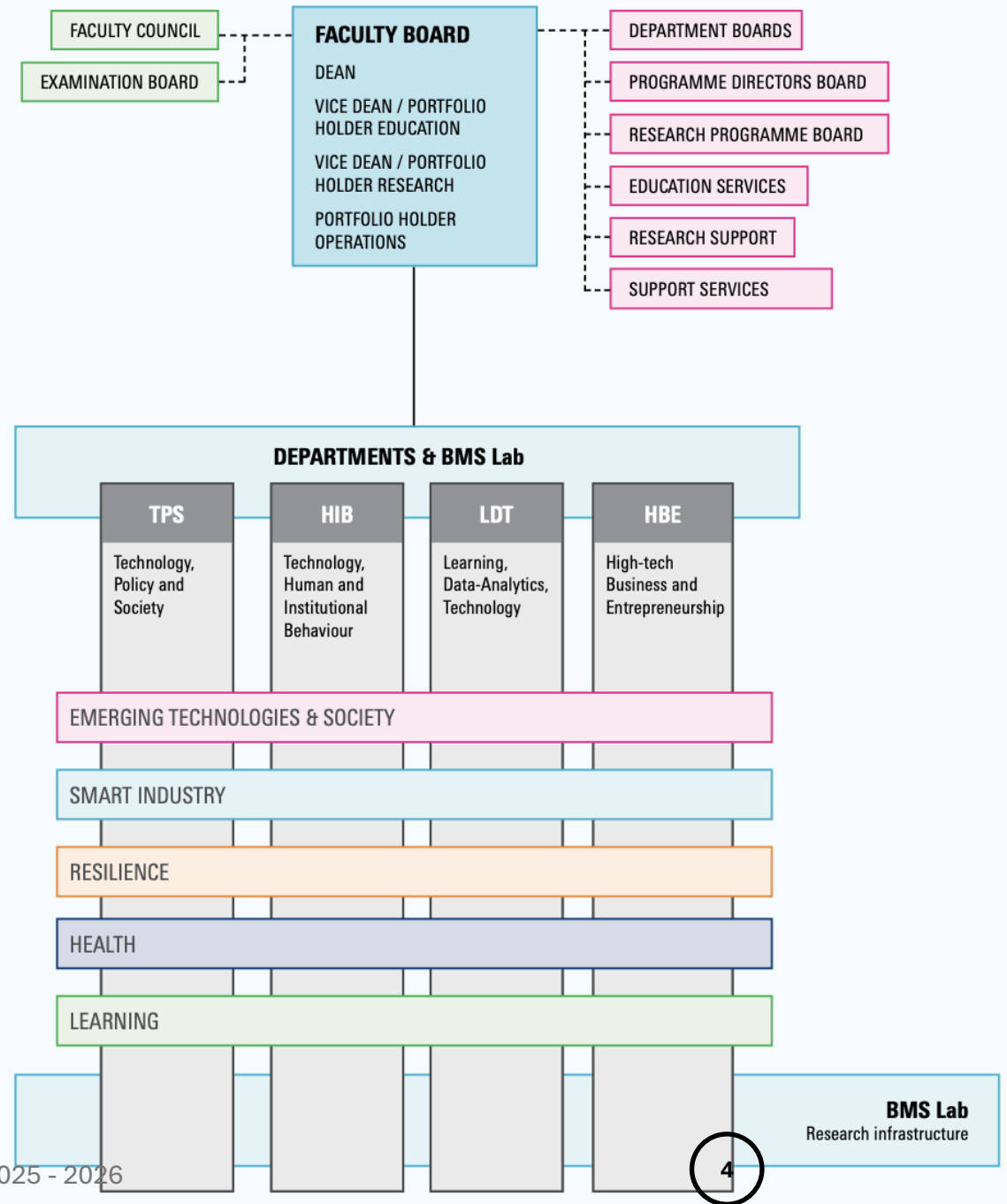
UNIVERSITY OF TWENTE.

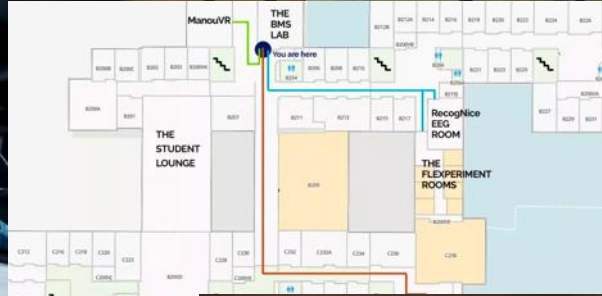
FACULTY OF BEHAVIOURAL, MANAGEMENT & SOCIAL SCIENCES

- A pivotal role in understanding, co-engineering and evaluating innovation in society.

The BMS Faculty boasts academic disciplinary knowledge in:

- Psychology
- Business Administration
- Public Administration
- Communication Science
- Philosophy
- Education Sciences





Activate project



Co-funded by the
Erasmus+ Programme
of the European Union

*The strategic partnership develops **simulation scenarios for individual skills training**, as well as a **mobile application and e-portfolio** for narrative feedback.*

*Results will a.o. be, a **mobile application** with AI for getting and giving feedback, incl. an **e-portfolio**.*

These results will stimulate innovative learning and teaching practices in which individual health professionals engage more in deliberate practice.

*Today: **scenario, development and testing** of these innovations*

What is Narrative Feedback?

A **written description** of a student's performance, **organized** in logical order to illustrate the "**story**" or **account** of a student's **progress and performance**, including strengths **and** areas for improvement...to guide future efforts.



Deliberate practice and Feedback in Health Professional Education

1. Deliberate Practice (Anders Ericsson, 1991):
Excellence needs Experience-learning with concrete goal setting and extensive reflection
2. Feedback (Metastudie Hattie)
 - Is a very strong learning factor sehr starker Lernfaktor
 - Must be actively sought and given by learners
 - Has different dimensions :
 - Feed Up (where to direct to?),
 - Feedback (how did I do?) and
 - Feed-forward (what can be done next?)



Deliberate practice in Health Professional Education

- *A model of expertise development*
 - *assumes that competence improvement is a concentrated effort based on key elements:*
 - *a focussed well-defined task,*
 - *detailed and immediate feedback and*
 - *opportunities to improve through repetition*
- Competency-based learning (CBL) in skills labs (training with simulated authentic tasks)
- *Deliberate practice supported by a coach who frequently **observes** the learner's activities, **gives feedback** and **sets** challenging but realistic **next goals** with the learner.*
- *Need for user-friendly digital tools that record the spoken word and automatically transcribe its content into a digital portfolio, where it is tagged with scientifically sound coding mechanisms (instead of long lists)*

SUNA Scenario: PACT

PACT: Persons, activities, context, technology.

- Hans is a Med school student in his fifth semester.
- Hans is joining a ‚Klinikgruppe‘, a fixed organisational group of 6 students, for a medical examination simulation in the ‚Studienpraxis‘, the simulation infrastructure for ambulant care, scheduled via ‚Akzento‘, a administrative system for course scheduling, to train a physical examination with a trainer and a simulated patient.

Hans will perform a doctor-patient interaction with a simulated patient and possibly with a simulated relative in an examination room, while his peers (Klinikgruppe) will hear and watch him through as semi-reflective mirror and via camera and audio transmission.

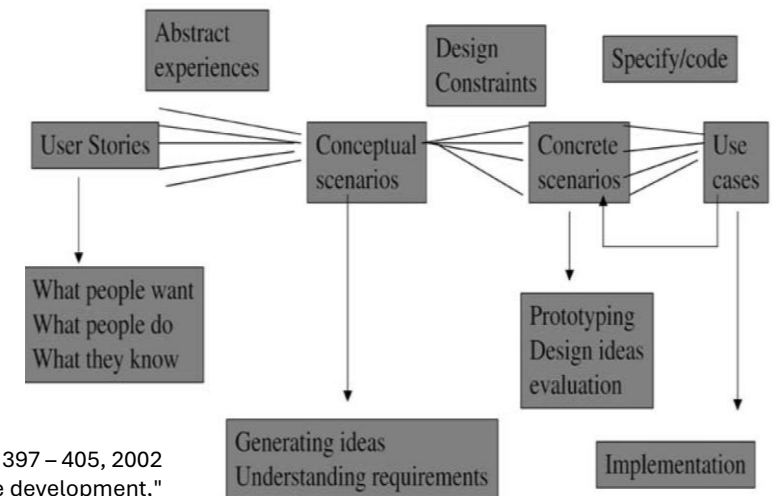
..... Fast forward

Feed-forward phase:

- After the group feedback conversation, Hans and the trainer go into a private room to talk about trust, reflect on more personal issues and create a personal action plan to improve. The structure of this private reflection conversation is:
 - Entrustment: independently, Hans and the trainer use an app on their own smartphones to assess Hans' social skills: agency, communion, interpersonal resilience and the level of support Hans would need in a real-life practice setting. Differences are a basis for discussion
 - Reflection on intra-personal reactions: the trainer discusses Hans' thoughts, feelings and actions in an interactive way.
 - Co-construct an action plan: the trainer creates together with Hans a plan that is Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) to follow up.
 - The private reflection conversation is audio recorded, and then automatically transcribed to Hans' e-portfolio

SUNA approach: Scenario-Based User Needs Assessment

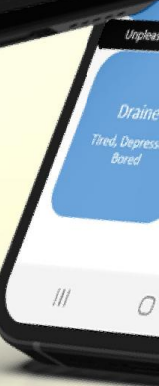
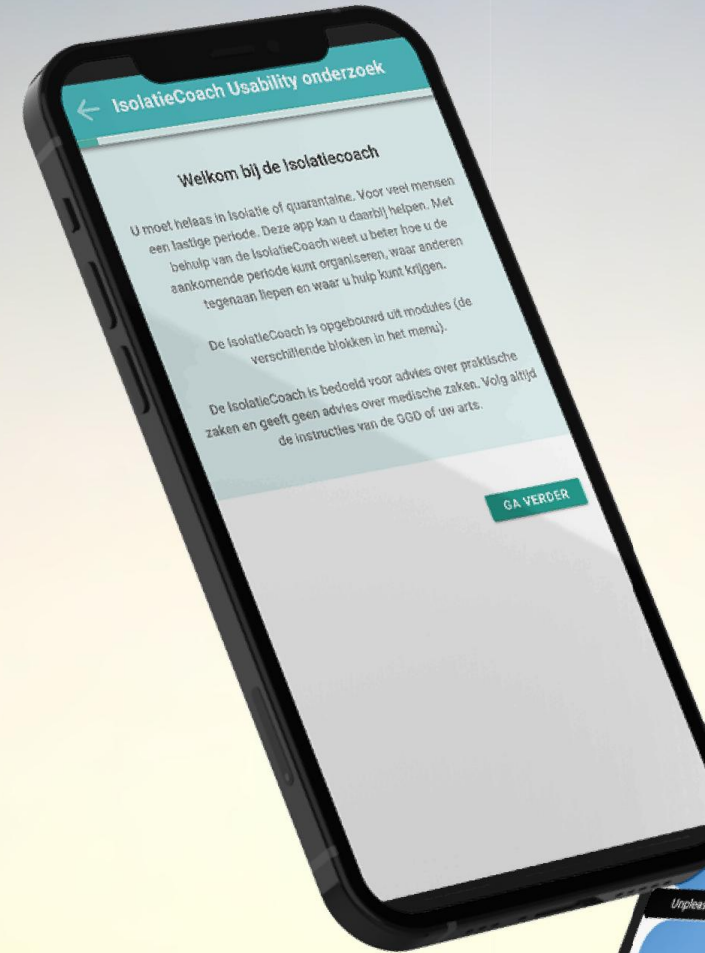
- In the requirements elicitation phase of the Activate project, a scenario-based needs assessment methodology (Beynon & Macaulay, 2002; Van 't Klooster, 2012) is proposed and adopted. The goals are to gather requirements for the to-be-implemented technology in the IDP use case and to align the stakeholders on the usage scenario. A scenario describes a concrete usage of the envisioned technology in its context in a daily life setting.
- **This Scenario-Based User Needs Assessment (SUNA) approach is particularly useful in multidisciplinary settings. It allows stakeholders (from all different kinds of backgrounds) to align on future work processes and technological support early in the design cycle.**
- **As scenarios describe concrete working examples, it becomes possible to relate to and imagine new developments and discuss implementation strategies with stakeholders.**
- Various scenario types exist as illustrated in the Figure on the right. They serve different goals throughout the design process, ranging from abstract experiences to concrete use cases.
- In Activate, an example scenario is developed (see Slide 6) which serves as input to define a concrete scenario. The concrete scenario is developed afterwards in WP2 Deliverable 2.5 based on this example.



Beynon D., Macaulay C., *Scenarios and the HCI-SE design problem*, Interacting with Computers, Volume 14, pages 397 – 405, 2002
 J. -W. van 't Klooster, B. -J. van Beijnum, A. Eliens and H. Hermens, "Interactive scenario visualization for user-based service development,"
 2012 International Conference on Collaboration Technologies and Systems (CTS), Denver, CO, USA, 2012, pp. 498-503, doi:
 10.1109/CTS.2012.6261096.

Mobile questionnaires
Cohort studies
eCoaching
Interventions
Experience sampling
EMA/EMI
Pilot testing
Clinimetrics
Wearable data
Clinical Trials
Education & eLearning

Apple Health & Google Fit compatible



TWENTE INTERVENTION AND INTERACTION MACHINE

van 't Klooster J-WJR, Rabago Mayer LM, Klaassen B and Kelders SM (2024) Challenges and opportunities in mobile e-coaching. Front. Digit. Health 5:1304089. doi: 10.3389/fdgth.2023.1304089

Developments built on existing no—code questionnaire app platform TIIM

E-Portfolio

← Was kann als nächstes getan werden? (option2)

Self:
Peers:
Tutor:

Wie durchsetzungsfähig, selbstsicher, entschlossen und energisch waren Sie in dieser Simulation? (z.B. ich konnte Patient*innen überzeugen, mitreißen, Konflikte austragen und Verantwortung übernehmen)	1 2 3 4 5	1 2 3 4 5
Wie durchsetzungsfähig, selbstsicher, entschlossen und energisch waren Sie in dieser Simulation? (z.B. ich konnte Patient*innen überzeugen, mitreißen, Konflikte austragen und Verantwortung übernehmen)	1 2 3 4 5	1 2 3 4 5
Wie durchsetzungsfähig, selbstsicher, entschlossen und energisch waren Sie in dieser Simulation? (z.B. ich konnte Patient*innen überzeugen, mitreißen, Konflikte austragen und Verantwortung übernehmen)	1 2 3 4 5	1 2 3 4 5
Self: Peers: Tutor:		
Wie herzlich, freundlich und mitfühlend waren Sie in dieser Simulation? (z.B. ich konnte mit hilfsbedürftigen, traurigen und verzweifelten Patient*innen umgehen)	1 2 3 4 5	1 2 3 4 5
Wie herzlich, freundlich und mitfühlend waren Sie in dieser Simulation? (z.B. ich konnte mit hilfsbedürftigen, traurigen und verzweifelten Patient*innen umgehen)	1 2 3 4 5	1 2 3 4 5

Start date: 03/07/2025 End date: 03/07/2025 Apply Filter Reset

🏠 ACTIVATE TEST...

0%

Talk about your experience and feelings regarding your recent portfolio

Answer this question with a recording

Usability workshop





Role: Student / Teacher / Simulation patient / _____

- **Blue:** what you like in the proposal.
- **Pink:** what you think should be improved in the proposal.
- **Yellow:** what you find an opportunity (e.g. in terms of your learning).
- **Orange:** what you think would be challenging using this in practice.

App Questionnaire
ePortfolio General

Role:

Student / Teacher / Simulation patient / _____

- **Blue**: what you like in the proposal.
- **Rose**: what you think should be improved in the proposal.
- **Yellow**: what you find an opportunity (e.g. in terms of your learning)
- **Orange**: what you think would be challenging using this in practice.

App Questionnaire
ePortfolio General

Usability workshop

Usability improvements were mentioned for both the web-based e-portfolio and the smartphone app.

In the e-portfolio, a table to compare simulation sessions would be appreciated, as well as a 'better way to structure and navigate/filter earlier sessions'.

In the app, the ability to perform speech to text was well received and it was felt this 'helps to capture feedback', but the usability of setting speaker numbers and language should be improved.

The designs of both the e-portfolio and the app were perceived as clear and aesthetic, and no major changes were suggested in this area.



RESEARCH QUESTION

*How do Health Sciences students experience self-reflection on **procrastination** through the TIIM app, supplemented by an e-portfolio and group reflection, as a means of gaining insight into their own procrastination behaviour and behavioural patterns?*

RESEARCH AIM

Objectives

- Explore students experiences with self-monitoring and reflection
- Investigate awareness of procrastination behaviour
- Identify behavioural patterns and perceived causes of procrastination

Method

- 6 bachelor students health sciences
 - 3 week reflection period with 5 questionnaires via the TIIM-app
 - Group reflection and think aloud session
 - SUS questionnaire for evaluating usability of the TIIM-app and the E-portfolio
-

WHAT WAS MEASURED?

- Occurrence of procrastination behaviour
 - Context in which procrastination occurred
 - Perceived causes of procrastination
 - Self-reflection and awareness
 - User experiences with the TIIM-app and E-portfolio
-

FINDINGS

1. Different types of tasks were postponed

- Some students mainly postponed large and complex tasks
- Others reported postponing short and simple tasks

3. Increased awareness

- Participants become more aware of moments in which they postponed tasks
- Reflection questionnaires acted as reminders
- Several students reported recognition of behavioural patterns
- Not all participants experienced behavioural changes

2. Causes of procrastination differed between students

- Some participants frequently linked procrastination to low motivation
- Others primarily attributed procrastination to distractions such as smartphones and social media

4. Strategies

- Starting tasks earlier
 - Scheduling dedicated study blocks
 - Breaking large tasks into smaller tasks
 - Reducing exposure to distractions
-

PREL. FINDINGS

Health Sciences students generally experienced self-monitoring through the TIIM app as a positive and accessible method for **reflecting** on procrastination behaviour.

Repeated **reflection appeared to increase awareness** of procrastination patterns and the factors contributing to them. Several students reported that the questionnaires encouraged them to consciously reflect on their behaviour during moments of procrastination.

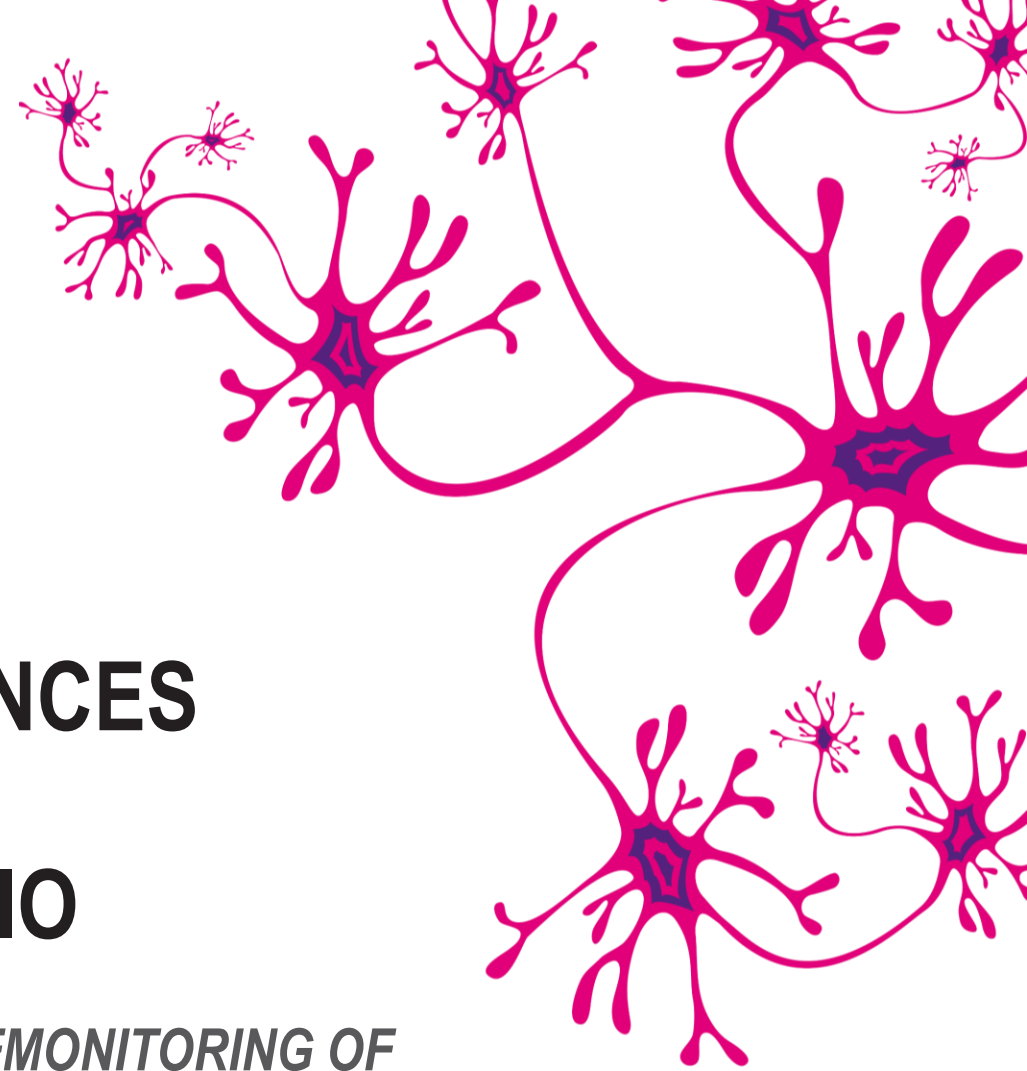
Although behavioural change was not observed in all participants, most students reported gaining **greater insight** into their own procrastination behaviour and behavioural patterns.

Mixed results regarding eportfolio. Some appreciated, some preferred in-app

L.M. DRIESSEN – STUDENT HS – S2975742

SMARTPHONE USAGE: EXPERIENCES OF HEALTH STUDENTS WITH SELFMONITORING & E-PORTFOLIO

*HOW DO HEALTHCARE STUDENTS EXPERIENCE SELFMONITORING OF
THEIR SMARTPHONE USAGE VIA TIIM-APP, AND GROUP REFLECTION, TO
GAIN INSIGHT IN THEIR SMARTPHONE USAGE EN PATTERNS?*



STUDY SETUP

Goal:

- study how HS students experience selfmonitoring via TIIM-app.
- Insight in awareness, reflection and behavioural patterns.

End points:

- Frequency smartphone usage
- Automatic /impulsive usage
- Context of the use
- Reflection and awareness
- Experiences of tooling used

• Methods:

- 7 health sciences studenten
- 1 week monitoring
 - 3x day EMA via TIIM-app
- Group reflection
- Personal e-portfolio
- Evaluatie
 - SUS
 - *Individual evaluation session*



FIRST FINDINGS

1. More self awareness of automatic smartphone usage

- Students underestimate frequency of smartphone usage.
- mainly automatic and goal-less checking.
- Participants became more aware of habits and subconscious behaviours.

2. Selfmonitoring stimulates reflection on behaviour

- by 3x / day diarising phone behaviour, more reflection on cellphone related actions.
- some directly tried adjusting cellphone usage behaviour.

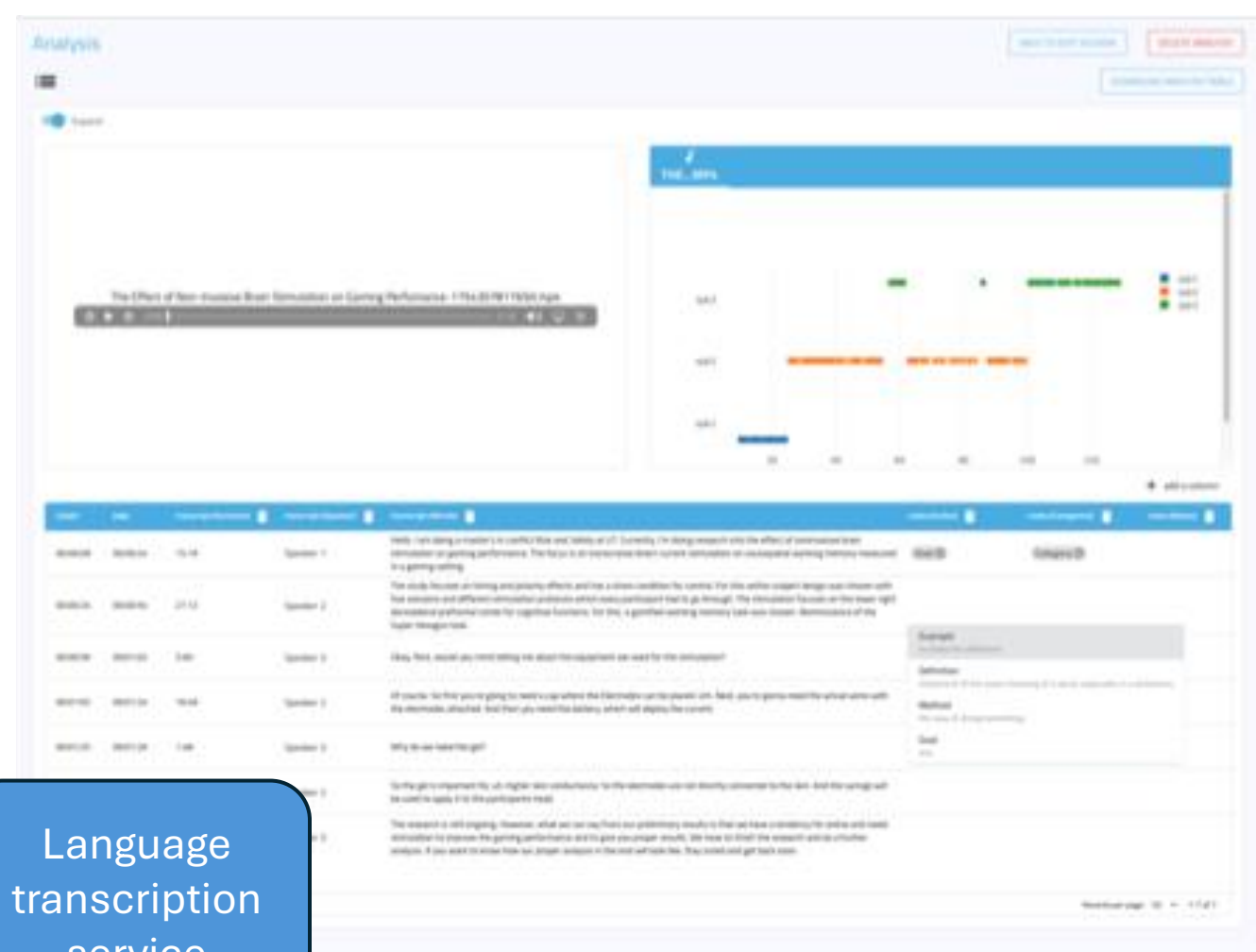
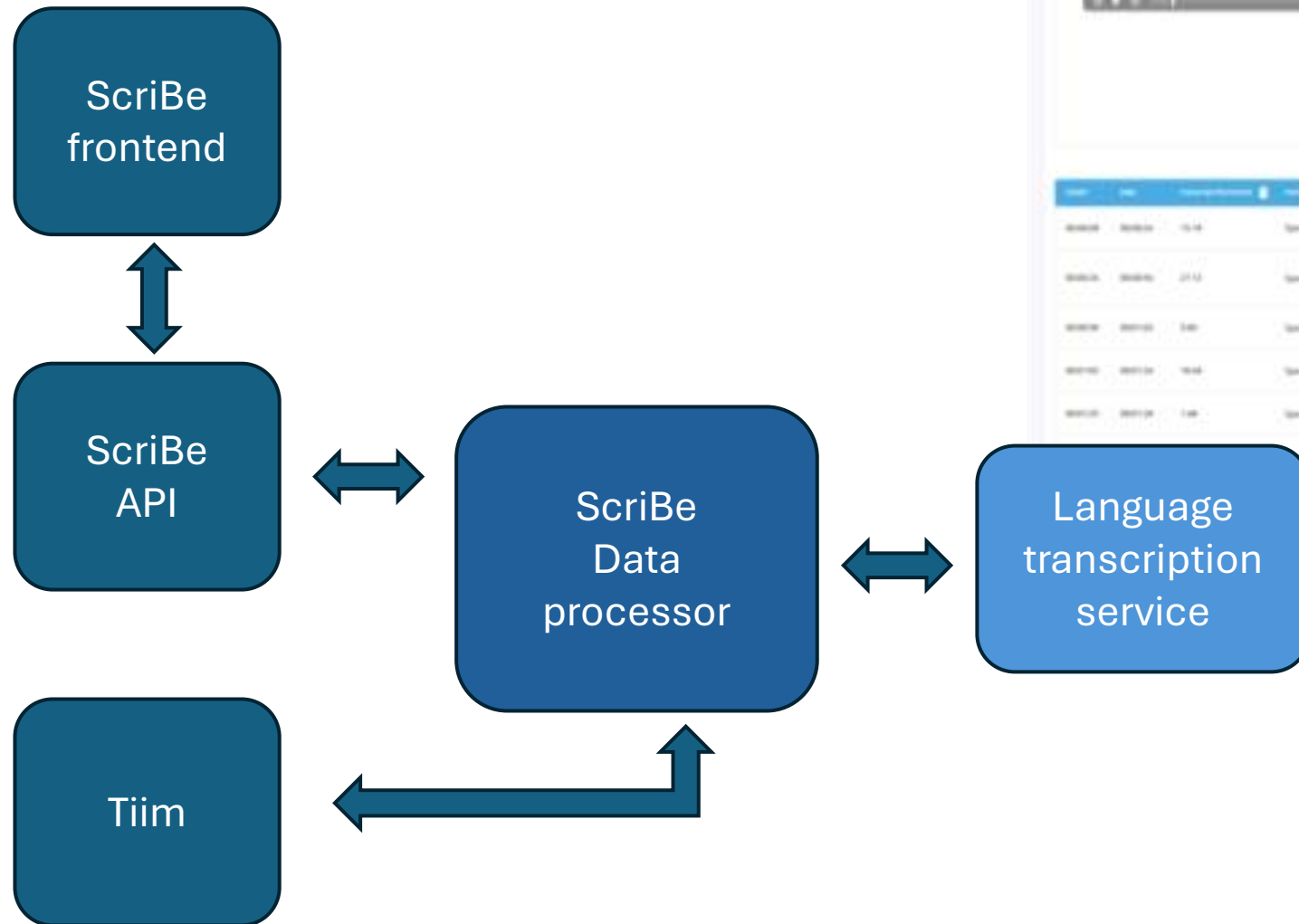
3. Smartphone usage very context dependent

- more smartphone usage :
 - bored
 - Waiting and travelling
 - In the morning and evening
- less :
 - busy study- or work moments
 - Social or active situations

4. Group reflection facilitated deepened understanding

- Group talk mostly valued positively.
- recognising in others increases raising awareness and coping.
- Students exchange strategies to become more aware in using cellphone.

ScriBe STT Ecosystem



Application Programming Interface for Scribe

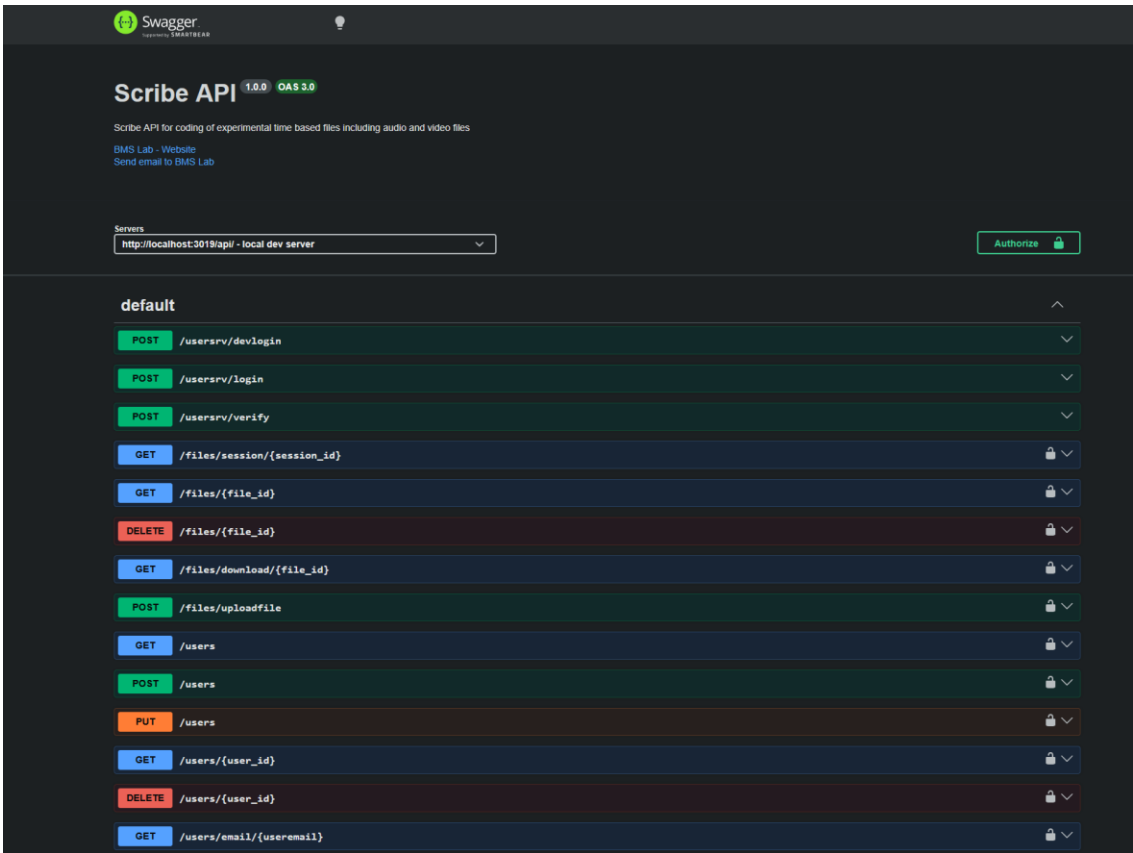


Online and document formats



Application Programming Interface for Scribe.

Version 1 (November 2025)



The Scribe API provides endpoints to the Scribe web application to do the following:

- Create, edit and delete sessions
- Retrieve user specific collections of sessions
- Upload and download files associated with a session
- Delete files associated with a session
- Retrieve a specific file
- Create, edit and delete analyses associated with a session
- Retrieve a specific analysis associated with a session
- Request transcription of an audio or video file into text
- Check the transcription status of a file
- Create, edit and delete codebooks
- Associate user data with sessions

Authentication is done on the endpoints by middleware, so that these endpoints are only accessible to authorized users subject to a timeout limit.

Sessions

The sessions endpoints are listed below with their associated HTTP methods.

/sessions	• GET: retrieve a list of sessions RESPONSE: application/json { "status": "string", "result": [{ "session": "string", "sessionFileAmount": 0, "sessionAnalysisAmount": 0 }] }
-----------	---

Conclusions and further research



- We described the e-portfolio and app for Activate IDP.
- Outcomes for questionnaire configuration, relevant app and e-portfolio items, and actual implementation / process suggestions, as well as longer term possibilities were found based on the collected categorised post it and poster data.
- Usability evaluation like discussed here is a valuable opportunity to incorporate early-development-stage feedback from stakeholders and end users in early design and development phases.
 - Can serve as example for evaluation of scenario based approaches
 - and evaluate foreseen technology on different dimensions with end users.
- Results reveal both outcome and process related elements :
 - potential for gathering rich and useful feedback for reflection tools.
 - scenario validation can go hand in hand with usability testing. end user involvement was shown to be beneficial in both early product design and evaluation, and validation of visionary scenarios.
 - Reflection on the reflection process improves process (including questionnaire and tooling used)
- In sum, we show that structured user involvement at an early stage enriches both the usability and relevance of feedback tools, while simultaneously confirming the value of scenario-driven development.

**User-centered Design of App-assisted Feedback Portfolio
Technology for Individual Deliberate Practice in Health
Professional Education**

Jan-Willem van 't Klooster ¹[0000-0002-5413-2792], Teodora Spirova¹, Elvis Vrolijk¹,
Andre Bester¹, Friedrich Pawelka², Bas de Leng²

¹ University of Twente, The Netherlands

² University of Münster, Germany



Co-funded by the
Erasmus+ Programme
of the European Union

Activate

Agile Competency based learning for Individuals And Teams

User-centered Design of App-assisted Feedback Portfolio Technology
for Individual Deliberate Practice in Health Professional Education

Münster 2, June 2026

Symposium

Jan-Willem van 't Klooster, Teodora Spirova, Elvis Vrolijk, Andre Bester, Xir Klein Breteler, Lotte Driessen
Friedrich Pawelka, Hendrik Ohlenburg, Bas de Leng

