

WP4 D4a Usability workshop report

Usability test of Individual Deliberate Practice (IDP) support

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Introduction

In the ACTIVATE project, software is developed to support and improve the individual deliberate practice of medical training students. An emphasis is put on the feedback gathered and expressed during simulation exercises in their training, and tools to support portfolio-building around this feedback.

In the first phase of the project, a visionary scenario of their future simulation training was established, software requirements for information and communication technology (ICT) tooling were established, and a start was made with the implementation of the tooling.

To gather early feedback of students, teachers and staff involved on the tools, to evaluate the scenario with end users, and to test the concepts of improved systematic feedback gathering, a **usability workshop** was held in May 2025 with end users, to gather feedback, usability improvements, and stakeholder opinions on these 3 matters.

This deliverable (WP4 D4a) provides the most important outcomes on the application for mobile devices for deliberate practice in individual training and the temporary e-portfolio.

The goals of this deliverable are (1) to provide a summary of process and the most important outcomes, and (2) to provide actionable insights and recommendations for the developers to improve the design and use of these tools in healthcare professional education.

Objectives of the usability workshop

The objectives of the usability workshop was threefold:

1. **Feedback on concepts:** Explain the students the importance of the concept of feedup, feedback and feedforward as part of their learning journey during medical training, especially regarding simulation exercises with simulation patients and evaluate their appreciation of these concepts.
2. **Validation of scenario:** Validate the scenario as presented in ACTIVATE deliverable WP2 D6. The goal here is to understand if the students accept this idea, appreciate the scenario, and to see if they have any feedback.
3. **Usability test of tooling:** Present and explain prototype of a mobile feedback questionnaire, speech-to-text functions to record and digitise/transcribe feedback (both using the smartphone app “TIIM”), and an web-based e-portfolio to access results. The goal here is validate the usability of these developments.

Usability test procedure

The complete protocol of the usability test is added in Appendix A. In particular, the following steps were carried out:

First, the feedback concepts important to Individual Deliberate Practice simulation were explained using a presentation by the project leader. The accompanying slides are added in Appendix B.

Then, the scenario was handed out to the participants, read out and explained, and then participants were involved in a *think aloud session*. This served as a way to validate the scenario with the actual end users.

In the next step, the focus was on the ICT tooling. To do this, the workshop continued with a hands-on exercise. On two axes, students noted tips and tops related to the proposed ICT concepts on a canvas (see Appendix C), in particular the smartphone app “TIIM”, and the web-based e-portfolio (for details, see ACTIVATE deliverable WP4 D1, Screenshots of the both ICT components can be found in Appendix F). One axis of the canvas relates to the *product mechanics*, the other axis to the foreseen *usage* in medical education simulation practice. Students were asked to provide feedback in this way and “think-aloud” during the hands-on experience. This division allows to both focus on software related and software visualization remarks, as well as actual usage, regardless of visualization.

Students gave consent using the institutions consent procedure and undersigned an informed consent sheet prior to the usability test.

Results

Setting

On 8. May 2025, n=9 participants participated in the usability test: Seven 3rd year German medical students, one tutor, and one staff member. They performed the steps as mentioned in the protocol. The usability test took place at the Studienhospital in Münster.

After the usability test, the feedback of the participants were translated, noted, categorised based on a consensus building process, and prioritised. Then,

- A concept of this deliverable was prepared, with process and structure of the test, the outcomes for questionnaire configuration, the software, and actual implementation / process suggestions for University of Münster, as well as longer term possibilities not implemented rightaway.
- An improved, better structured, and more easily navigable questionnaire to cover some of the feedback mentioned was proposed.
- Where relevant, app and e-portfolio items mentioned that related to the software improvements, were scheduled for software development. These related to usability issues in TIIM and e-portfolio comparison/filter/sort possibilities.

The full feedback of the participants is listed in Appendix D. Here, we summarize the outcomes in the three found categories as distilled from the detailed results: *Usability improvements*, *Questionnaire Structure*, and *Process*.

Usability improvements

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.

Questionnaire structure

Regarding the questionnaire structure, remarks were made on having both a logical and recognizable structure of the various questionnaire parts, and a comprehensible navigation between them. For instance Selbstwahrnehmung (self-assessment) and Fremdwahrnehmung (assessment by others) could be viewed side by side, both during the feedback session itself as well as afterwards in the portfolio.

The questionnaire has been revised and the current version can be found in Appendix E.

The proposed changes aim to improve the overall experience by optimising the questionnaire, leaving space for comments to be added by the students and creating a more natural and intuitive flow of conversation for the audio recordings. The revised format ensures that participants can complete it more efficiently while maintaining the quality and relevance of the data collected.

Process

In the process of using the proposed audio transcription and e-portfolio based tooling, it was noted that it should be clear:

- who has the responsibility to take the device that makes the recordings,
- who has the responsibility to perform the recording of the feedback at each moment,
- make sure that the questionnaire is followed along the usage scenario,

Also, it has to be made clear whether an institutional phone or a private phone is to be used.

Further down the road, generative AI could moreover be used to summarise the transcripts, eventually taking results and performance into account.

Accessibility considerations

Many mobile devices offer built-in accessibility features—such as screen readers (e.g., VoiceOver or TalkBack), zoom functionality, and options to adjust display and text size—which can be enabled through the device's Accessibility menu. As part of ongoing development, options are being explored to enhance the TIIM app's compatibility with these system-level accessibility settings, with the goal of supporting a wider range of user needs and ensuring a more inclusive experience.

Conclusions

This document described the outcomes of the Activate IDP usability test. After this usability test, the outcomes were translated, noted, categorized, and prioritized. Outcomes for questionnaire configuration, relevant TIIM and eportfolio items, and actual implementation / process suggestions, as well as longer term possibilities were proposed consecutively based on the collected data.

As a result of these findings, specific adjustments were made to the functionalities of both the TIIM app and the eportfolio to enhance user experience and support smoother integration into the curriculum. The TIIM app now retains the number of speakers and the language spoken from the initial to the follow-up audio recording items (figure 1). This information can also be adjusted if circumstances change, such as an additional speaker joining a conversation. The eportfolio has been updated with a new table view, enabling participants to view and compare their responses across multiple sessions (figure 2.). This view includes filtering options by date, offering clearer insights into progression over time.

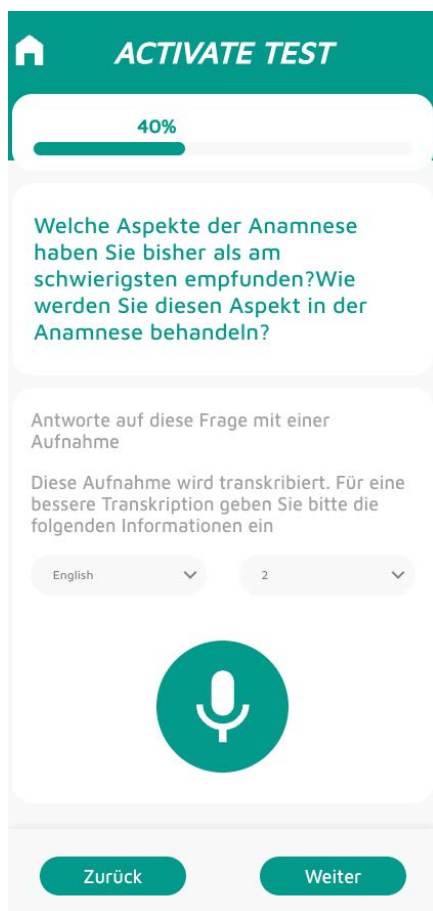
The screenshot shows a mobile app interface titled 'ACTIVATE TEST' with a teal header. Below the header is a progress bar at 40%. The main content area contains a question in German: 'Welche Aspekte der Anamnese haben Sie bisher als am schwierigsten empfunden? Wie werden Sie diesen Aspekt in der Anamnese behandeln?'. Below the question, it says 'Antworten auf diese Frage mit einer Aufnahme' (Answer this question with a recording). A note states: 'Diese Aufnahme wird transkribiert. Für eine bessere Transkription geben Sie bitte die folgenden Informationen ein' (This recording will be transcribed. For a better transcription, please enter the following information). There are two dropdown menus: the first is set to 'English' and the second is set to '2'. Below these is a large teal circular button with a white microphone icon. At the bottom, there are two teal buttons labeled 'Zurück' (Back) and 'Weiter' (Next).

Figure 1. Audio recording item

← 2. Wie habe ich es gemacht?

Start date: 25/07/2025 End date: 25/07/2025 Apply Filter Reset

| Was ist das Thema dieser Übungseinheit? | test | X |
|--|--|--|
| Was sind Ihre ersten Eindrücke? Was bewirken diese bei Ihnen? | 1753363511520-tim-recording.mp3 We're working on your transcription now. Come back shortly! | 1752584203504-tim-recording.mp3 We're working on your transcription now. Come back shortly! |
| Welche Zwischenspekte sind Ihrer Meinung nach gut gelungen und warum? Welche Aspekte wurden Sie beim nächsten Mal ändern und warum? | 1753363517369-tim-recording.mp3 We're working on your transcription now. Come back shortly! | 1752584206857-tim-recording.mp3 We're working on your transcription now. Come back shortly! |
| Selbstwahrnehmung: die eigene Person, die eigenen Eigenschaften und die eigene Haltung einschätzen. Social skills - Agency | 1 2 3 4 5 | 1 2 3 4 5 |
| Selbstwahrnehmung: die eigene Person, die eigenen Eigenschaften und die eigene Haltung einschätzen. Interpersonal resilience | 1 2 3 4 5 | 1 2 3 4 5 |
| Selbstwahrnehmung: die eigene Person, die eigenen Eigenschaften und die eigene Haltung einschätzen. Social skills - Community | 1 2 3 4 5 | 1 2 3 4 5 |
| Fragen Sie Ihre Kommilitonen nach ihren | We're working on your | 1752584214583-tim- |

Figure 2. Table view in the eportfolio

All in all, a usability workshop like here proves to be a valuable opportunity to incorporate early-development-stage feedback from stakeholders and end users in particular.

Moreover, the action allowed to evaluate the scenario developed and evaluate the foreseen technology on different dimensions with end users in an interactive and engaging session.

The results are both outcome and process related in nature. On one hand, they show the richness and usefulness of the feedback gathered. On the other hand, they also show that scenario validation can go hand in hand with usability testing. The findings described here can be assessed in a pilot test as a next step.

Appendices

Appendix A – Protocol

WP4 Usability test Individual Deliberate Practice Mobile app and ePortfolio

Münster, 8. May 2025

Protocol

| | |
|--------------------------------|--|
| Study type | Usability test in workshop format (10-24 pers.) |
| Kind of data collection | <ul style="list-style-type: none">• Sheets with written post-its containing participants' feedback• (anonymous) audio recording after introduction |
| Necessities | <ul style="list-style-type: none">• meeting room with tv, internet^[1]• A3 poster sheets per participant, post-its in different colors, markers• laptop, prototype mockups^[2] |
| Workshop leaders | Jan-Willem van 't Klooster, Teodora Spirova, Elvis Vrolijk |

Introduction (7 min)

- A round of introduction, names an affiliation.
- Underlying goal of Erasmus+ Activate, background of the project.
- What is Individual Deliberate Practice (IDP) training.
 - What is feedback
 - Goals of feedback in Individual Deliberate Practice (IDP) training.
- Goal of today: getting early-development-stage feedback on innovative developments for feedback support, by means of a usability test of **feedback tool and e-portfolio** digital tools (app and e-portfolio).
- Structure of today's usability test, i.e. the steps 1..6 below.
 - To be aware, not all is set in concrete, it is a work in progress. End user involvement during the process is important for the development & uptake.
 - Okay to answer in German if preferred. Workshop and materials will be in English.

Recording

Anonymous audio recording is made to support the data collection, solely for this research project. No names or identifiable information need to be mentioned.
(consent procedure, followed by start of recording)

1. *Explanation of workshop steps. (3 min)*

- First, we will try to get a grasp of the audience with a few introductory questions.
- Then, we will present you a scenario which shows the future use of the study process Münster and Twente are currently developing.
- Thirdly, we will show you some elements in more detail and ask for your feedback using the post-its.
- Finally, we will ask for, challenges and opportunities, other feedback, and shortly reflect on the meeting.

2. *Grasp of Audience (3 min)*

- What do you do in **daily life? Who of you is fulltime medical student** (raise hands)? Write role on handed out A3 poster sheet.
- Who of you use **mobile phone** and **laptops/computers** on a **daily basis for your study?**
- Regarding **Tech savviness**, how would you describe your **familiarity with technology?**

3. *Discuss scenario (10 min)*

- Handout scenario, and read through with group
- Write down first reaction on sheet
- Are there unclarities or questions?
- Round of (oral) responses

4. *Discuss mockups (3 x 10 min)*

TV Screen will be used to show a demo with elements of the technology. A number of mockups/screens will be shown and explained:

1. TIIM mobile app (Teodora)
2. Questionnaire (Teodora)
3. ePortfolio (Elvis)

For each of the mockups presented, write down on a post-it and put on designated place on A3 sheet:

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

5. *Ask for general opportunities and challenges session (7 min)*

After seeing the above, ask for general opportunities, suggestions and remarks.

6. *Closing (3 min)*

- AOB
- Reflection on the meeting
- Next steps.
- Thanks and rounding of.

^[1] Arranged by University of Münster

^[2] Arranged by University of Twente

Appendix B – Slides used



1



2



3



4

Comments of the slides

Slide 2: Red: focus of today

Slide 4: 1)

Deliberate practice, a term that we owe to the Swedish psychologist Anders Ericsson.

Decades of expertise research have shown time and again that a lot of experience (10,000 hours of practice as a rule) alone is not enough to become an expert. To achieve such excellence, deliberate practice is required. Every time you want to learn from experience, you have to set goals beforehand about what and how you want to improve, and then reflect afterwards on whether these goals were achieved and what you can do better next time.

So it's a culture of constant learning and improvement. This is common in elite sport, but not in medicine.2) Feedback

Hattie's huge meta-study has shown that feedback is one of the most powerful elements of learning. It also repeatedly emphasizes the importance of learners playing an active role: feedback should be sought, asked for and given.

There are also different feedback cultures in the fields of sport and medicine. In sport, feedback is expected and respected by learners and is constantly given and discussed in detail by teachers. In medicine, feedback is often still perceived as criticism or as an accusation of failure and such situations are preferably avoided. Feed-up, feedback and feed-forward are therefore integrated into the application.

Appendix C – Canvas

ACTIVATE
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
ePortfolio

Questionnaire
General

Appendix D – (Written) Feedback of the participants

The colors represent different perspectives (see canvas in Appendix C):

- Blue: what you like in the proposal
- Rose: what you think should be improved in the proposal
- Green (instead of yellow to improve readability): what you find an opportunity (e.g. in terms of learning)
- Orange: what you think would be challenging using this in practice

Teacher

App

- Background noises (construction, people..) influences the quality of the transcription?
- Audio recording changes the setting/style of giving feedback ?
- Data protection issues in Germany
- Technical issues (devices, empty battery, phone un backpack in other room etc) + problematic for teachers who aren't digital natives

Portfolio

- **Opportunity to filter each topic -> developed over time**
- Add field for personal notes

Questionnaire

- It would be good to have a field for the topic of the professional identity formation and the reflection about that
- Conservation of feedback -> available for later simulations

General

- Comprise the conversation in bullet points-> more efficient to read

Student A

App

- Fill a text field for typing something in when one is asked to do something
- Could you add a person who will join the feedback a bit later? Or is it intended to be just for ... to talk about the topic
- Easy ... way of use

Portfolio

- Space on one's private phone (or there will be used forms from the location)?
- Does the app run ... while usage on many students -> wifi related?
- Feedback might get less personal because of recording.. * and less "just say something because now the person and not just the main .. words like a checklist

Questionnaire

- Adding a textfile to give the session/ lecture a headline "Abdomen tag" or something like that
- **Adding a search bar to get .. to your wanted information**
- Add folders like 1. .. semester 2nd...
- Add date and topic on the right side (today's topic)
- Beautiful colour -> maybe select your own colour
- My inner Monk would be pleased if you could sort the questions according to their numbers from small to large also recording the....

General

- Having more specific and more detailed feedback
- Talking about ones intentions and .. reflecting about them later on

Student C

App

- Structured feedback regularly given
- Skills show unifocally how one improves over time
- Is there enough motivation mong students to fill everything out overtime
- What to do when some studnets don't have the device or empty battery

Portfolio

- recoridng and tsranscirpition I like very much but without AI it is probably too long and too unstructured
- Pink- direct comapriion between the different dates (by graphs) of different persons and different days
- No diect comparison between individul days
 - So you cannot see your improvement or deterioration in one overview

Questionnaire

General

- by recording the feedback one can prepare well for future sessions, but will probably give structure in the talk because you prepare well upfornt
- opportunity to better ask youself what you want to achieve or improve and every time watch the feedback video and recording back
- individul talk with tutor is currebntly barely organised

Student D

App

- Everybody has a phone – very accessible
- Better than written feedback (gets lost quickly)
- Anonymous feedbacking is a good option for people who usually don't like talking in a group
- Feedback while watching simulation integrated directly into the app-> person can read this ... of peers while watching afterwards
- Peers should be able to send anonymous feedback to your account
- Getting everybody to agree to being recorded & implement the new system to a lot of students
- Preventing very negative comments due to anonymity can be hard and might affect feedback

Portfolio

- All feedback and simulates over course of studies in one place -> structured overview for creating learning goals
- Gathering all information from different stadiums of professional evolution and being able to reevaluate your own learning progress over the years
- **Better .. of sessions -> user can be able to retrace feedback to specific time of simulation**
- Categorizing feedback for ex. Agency skills
- Being able to search bullet point if you want to review specific feedback

Questionnaire

- Rankings of different qualities on a scale is quick and easy
- There could be optional space to leave a commentary explaining the ranking and giving advice for the future

General

- App is easy to use
- Design is not too complicated
- Would be nice to have the e portfolio and app connected to medical campus log in
- Have personal link you can share when you want people to feedback you

Student E

App

- easily to use and helps structuring feedback ;
- nice / lightweight design
- could help to be time efficient because the feedback in structured form takes very long
- easily switching between previous questions would be nice to have
- its annoying what each time you have to put in the language and number of people

Portfolio

- one overview of total development e.g. 1-6 and then the change in the answers of them overtime

Questionnaire

- concretise questions and explanations - the possibility to cover all aspects
- I think that the questions with the audio recordings there is a repetition of the answers; in particular what is seen may feel difficult to categorize and also challenging as a group is on one scale to rate a single person

General

ICT professional

App

- Store transcript details ...
- show nr of remaining questions....
- good ui, clean, easy to access

Portfolio

- Group by date ? by 1-2-3
- Other name for mp3 or hide all
- Easy to access
- Comparison of aspects on ... days (e.g. self-assessment) seems difficult
- .. possibility for grid view

Questionnaire

- Feedback/up/ forward or numbers 1,2,3
 - show structure in questionnaire, where are you (feed up / back / forward)

- Why question with limette?

Student F

App

- more than 5 persons

Portfolio

- make folders and be able to name them
- that you don't have storage space issues
- a file/folder per semester or per year of study program rather than a list

Questionnaire

- already upfront have the opportunity to give notes in e portfolio per person, app instant of paper
- a lot of feedback form different perspectives, set goals upfront, and in general per category

General

- Item treshhold of honesty (?)
- Quality of transcription; key words could be used better and faster than transcriptions and audio data;informationm s
- Should be more compressed
- comparsion between self reflection an reality -> imprpovement of self reflection
- possibility to reflect later

Student G

App

- audio quality
- sleek deisgn/ clear
- besides the trasncript itwould be useful to aslo have manual extra input where one can add stuff/ items/ comments)(?)

Portfolio

- more time intensive than just 'talking'
- one place where you have everyhting
- a better overview topic related (now it says 3 times what can you do next)

Questionnaire

- useful because feedback is quickly forgotten; especially when it was weeks ago
- clear overview of all feedback and all details

General

- Digital forms are useful nowadays you don't need to use paper notes;it is collected in one place
- Differentiate in feedback parts for example how you feel and how it is recorded

Student H

App

- digital

- Long recording
- well structured and localised
- better clustered into a summary
- directly have the feedback during the talk
- Categorised notes instead of speaker order
- shared session -> people add things from a different phone
- use of smartphone-> need to have a working phone ; problems with phone systems; ios, android etc.

Portfolio

- Amount of data; keep the overview ; AI that summarises it
- Tool for notes and overview over multiple years

Questionnaire

- Avoid duplications; Feeling that persons have to address specific points; tense atmosphere
- Possibility to think again about what to say and to listen again
- Sort what was said not by person but by content

General

- Easy to use; looks beautiful

Appendix E – Revised questionnaire used in the app (english translation)

The initial questionnaire used in the app was revised based on the valuable feedback collected the session with end users in May. These changes aim to improve the overall experience by shortening the questionnaire, leaving space for comments to be added by the students and creating a more natural and intuitive flow of conversation for the audio recordings. The revised format ensures that participants can complete it more efficiently while maintaining the quality and relevance of the data collected.

The questionnaire is divided into the three chapters *Feed Up*, *Feed Back* and *Feed Forward*. Each chapter contains several items. For each item, the item type used in the app is named (e.g. Audio recording or instruction). Screenshots of the different item types can be found in Appendix F.

Chapter 1: **Feed Up** „Wohin soll es gehen?“

- 1) Freetext:
What is the topic of this exercise unit?
- 2) Audio recording:
Mention **3 aspects** you find essential for a good anamnese, and tell us why.
- 3) Instruction:
Look at how the rating scale used for assessments in the LIMETTE describes superior performance for an anamnesis
 - a. Obtain a *complete* and *accurate* history in an *organized* fashion
 - Obtains a complete and accurate history in an organized fashion.
 - Seeks secondary sources of information when appropriate (e.g. family, primary care physician, living facility, pharmacy).
 - Adapts to different care settings and encounters.
 - b. Demonstrate *patient-centered* interview skills
 - Adapts communication skills to the individual patient's needs and characteristics.
 - Responds effectively to patient's verbal and nonverbal cues and emotions.
 - c. Demonstrate clinical reasoning in gathering *focused* information *relevant* to a patient's care
 - Demonstrates astute clinical reasoning through targeted hypothesis-driven questioning.
 - Incorporates secondary data into medical reasoning.
- 4) Audio recording:
What aspects of an anamnese you find till now the most difficult? How will you address this aspect in this anamnese?
- 5) Audio recording:
Ask your peers for suggestions for a good approach for your goal.
- 6) Audio recording:
What kind of feedback from your peers after the simulation would you find helpful for your learning?

Chapter 2: **Feed Back** „Wie habe ich es gemacht?“

- 1) Audio recording:
What are **your** initial reactions? How are you feeling?
- 2) Audio recording:
Ask your **peers** about their impressions and how they deal with such situations.
- 3) Audio recording:
What aspects were managed well and why (**your** view)? What aspects do **you** want to change and why?
- 4) Audio recording:
Ask your **peers** what they observed and how they interpreted this. Ask your **peers** suggestions how to improve your anamnesis skills.
- 5) Audio recording:
Summarise the lesson learned (by **yourself** or the **tutor**).

Chapter 3: **Feed Forward** „Was kann als nächstes getan werden?“

- 1) Instruction:
Social skills
The three social skills of **Agency**, **Communion** and **Interpersonal Resilience** are presented to you below. Rate how strong **you** were in each competence (in relation to the simulation you have just completed). Then give the device to your **tutor**, who will also assess your level of competence.

Scale for the following items: 1 (low level of skill) to 6 (high level of skill)


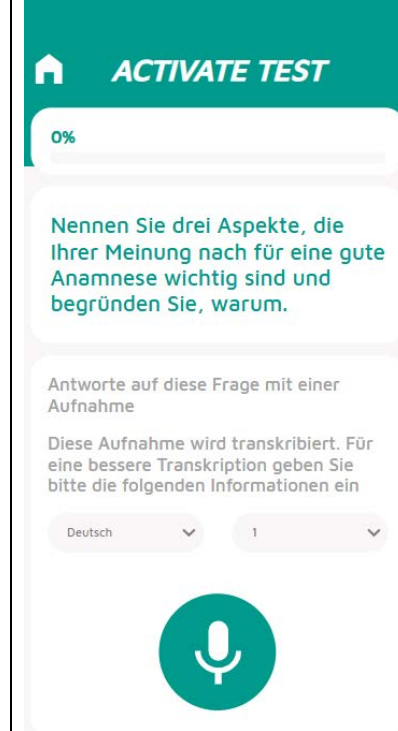
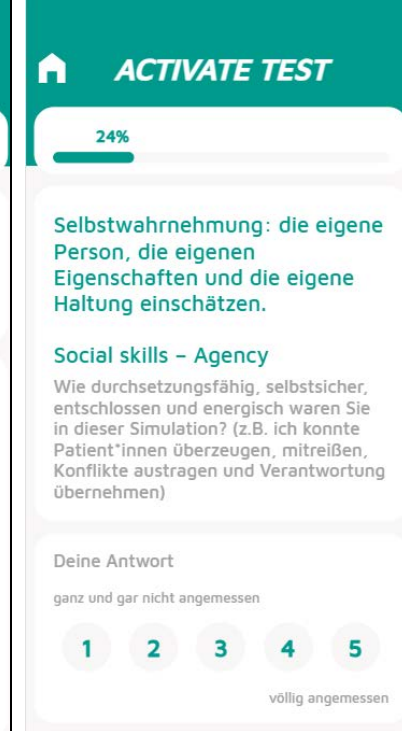
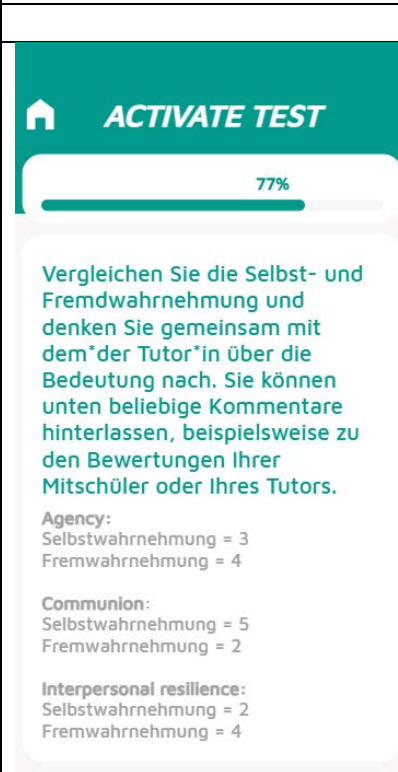
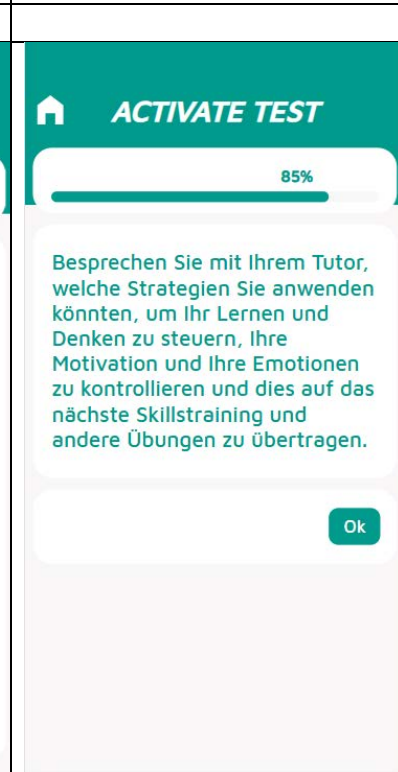
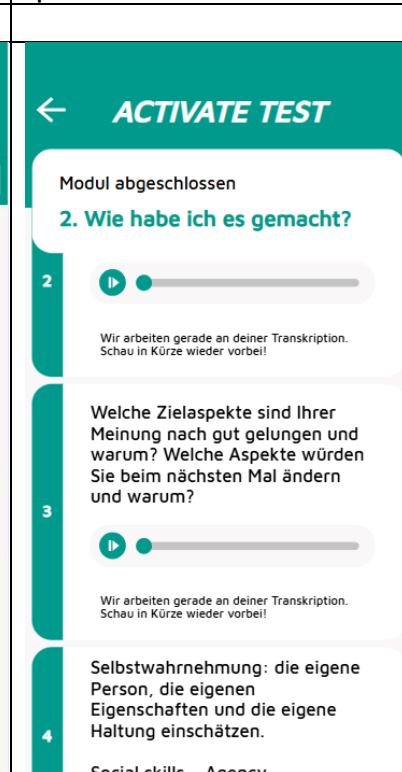
- 2) Numeric scale:
Agency: I demonstrated assertive, confident, decisive, and energetic behavior in this simulation (e.g. I was able to convince patients, carry them along, resolve conflicts and take responsibility).
- 3) Numeric scale:
Communion: I showed a warm, friendly, and compassionate behavior in this simulation (e.g. I was able to deal with needy, sad and desperate patients).
- 4) Numeric scale:
Interpersonelle Resilienz: I was calm, relaxed, and emotionally balanced in this simulation (e.g. I was able to tolerate stress, negative feedback, criticism and uncertainty/ambiguity).
- 5) Instruction:
Please pass the device on to your **tutor**.

As a tutor, you will be introduced to the three social skills of Agency, Communion and Interpersonal Resilience below. In each case, please assess how strong the competence was for the student (in relation to the simulation just carried out).

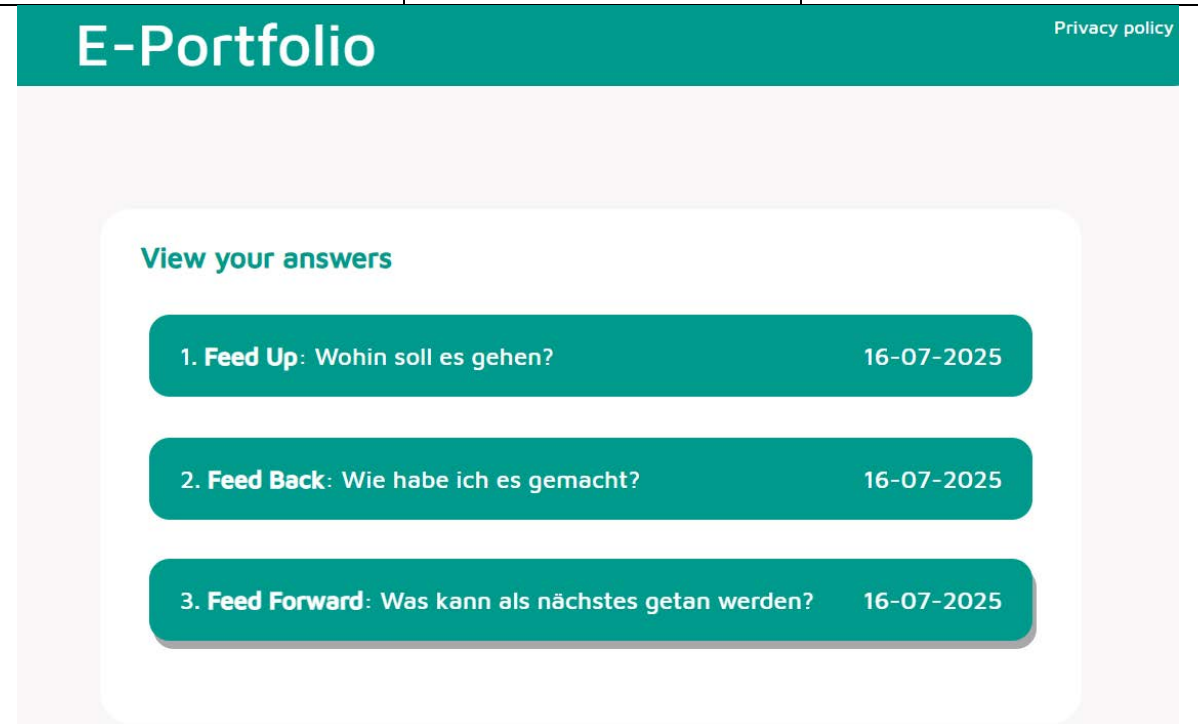
- 6) Numeric scale:
Agency: The student demonstrates assertive, confident, decisive, and energetic behavior in this simulation (e.g. can convince patients, carry them along, resolve conflicts and take responsibility).

- 7) Numeric scale:
Communion: The student shows a warm, friendly, and compassionate behavior in this simulation (e.g. can deal with needy, sad and desperate patients).
- 8) Numeric scale:
Interpersonelle Resilienz: The student demonstrates calm, relaxed, and emotionally balanced behavior in this simulation (e.g. can tolerate stress, negative feedback, criticism and uncertainty/ambiguity).
- 9) Instruction:
Compare your self-perception with how others perceive you and discuss the meaning of these perceptions with your tutor.
- [Comparison view of own and tutor perception]
- 10) Audio recording (Q4):
Please **verbalize** your conclusions.
- 11) Instruction:
Self-regulation is about consciously perceiving and controlling your own thoughts, feelings and behavior.
- Discuss** with your tutor the strategies you could use to manage your learning and thinking, control your motivation and emotions, and apply these skills to the next training session and other exercises.
- 12) Audio recording:
Please **verbalize** your conclusions.
- 13) Instruction:
Goalsetting
Work with your tutor to set one or two learning objectives for the next skills training session. Verbalize them in the next step and make them SMART:
- Specific: the outcome is concrete and described in precise detail.
 - Measurable: the outcome can be measured and objectively assessed by you and others.
 - Achievable: the outcome is realistic and feasible for you at the moment.
 - Relevant: the outcome is important for healthcare staff and patients.
 - Timely: the outcome is implemented for a limited period of time.
- 14) Audio recording:
Please **verbalize** your conclusions.
- 15) Instruction:
Thank you for your participation in today's course. Please take another look at the notes in your portfolio to reflect on them.
- You can now close the app.

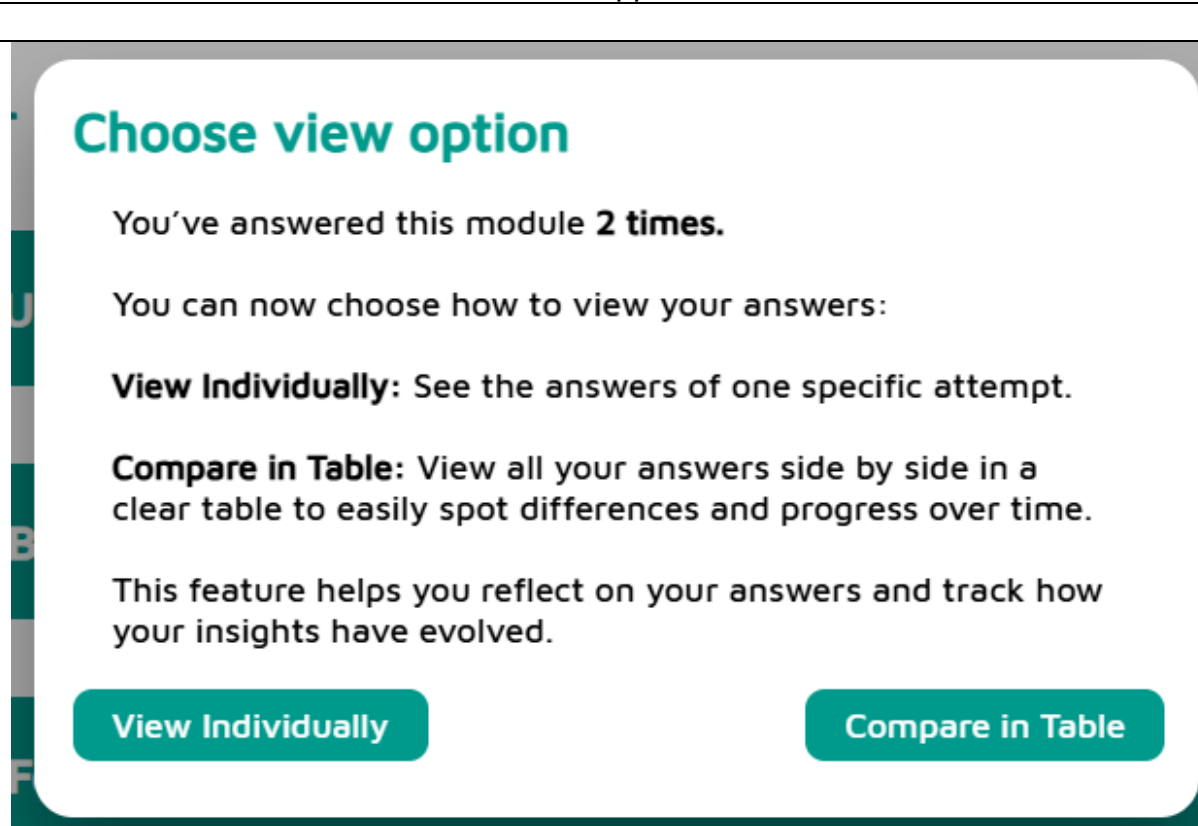
Appendix F – Screenshots of app used for questionnaire and e-portfolio

| | | |
|---|---|--|
|  |  |  |
| <p>1) Overview about available modules</p> | <p>2) Recording question, used for verbal feedback</p> | <p>3) Numeric scale question, used for quantitative feedback</p> |
|  |  |  |

| | | |
|---|---|---|
| 4) Comparison view, used to show self- and external perception side by side | 5) Statement „question“ for instruction purpose | 6) Overview about answers in a completed module |
| | | |



7) E-Portfolio with all answered modules: accessible via private link, generated via the app



8) Different view options in e-portfolio for a specific module. Implemented based on feedback during usability test

| <div> <div>←</div> <div>2. Wie habe ich es gemacht?</div> <div> <div>Start date: <input type="text" value="tt.mm.jjjj"/></div> <div>End date: <input type="text" value="tt.mm.jjjj"/></div> <div>Apply Filter</div> <div>Reset</div> </div> </div> | | | |
|--|---|---|--|
| <div>Simulation? (z.B. Ich konnte Patient*innen überzeugen, mitreißen, Konflikte austragen und Verantwortung übernehmen)</div> <div>Selbstwahrnehmung: die eigene Person, die eigenen Eigenschaften und die eigene Haltung einschätzen.</div> <div>Wie herzlich, freundlich und mitfühlend waren Sie in dieser Simulation? (z.B. Ich konnte mit hilfsbedürftigen, traurigen und verzweifelten Patient*innen umgehen)</div> | 1 2 3 4 5 | 1 2 3 4 5 | |
| | 1 2 3 4 5 | 1 2 3 4 5 | |
| | 1 2 3 4 5 | 1 2 3 4 5 | |
| | We're working on your transcription now. Come back shortly! | We're working on your transcription now. Come back shortly! | |

9) Tabular display in e-portfolio of responses in a specific module at different points in time