4D Learning activity: Experience and Evaluation

Digitalization in learning practice placement

TecnoCampus   upf. Universitat Pompeu Fabra Barcelona   MEDICAL UNIVERSITY OF LUBLIN   IGTP   Kubify Learning Toolbox for ePosters   TU Graz   UNIVERSITY OF TWENTE.   UNIVERSITÄT DUISBURG ESSEN

Title: Learning activity experience and evaluation

The 4D project is an EC-funded project (February 2022 to February 2025) to introduce mobile technology in practice placements, creating a bridge between the different actors involved learning contexts to foster the best experience in practice-based learning in healthcare settings. Our multidisciplinary team uses qualitative, quantitative and designs methods in order to help European Universities that are interested in introducing mobile applications in practice placements to design the best mobile app proposals based on the different actors involved (students, clinical and academic tutors, managers, and others) from different contexts (universities and centers of practices).

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Find out more: https://4d.tecnocampus.cat/

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Content

1. Introduction

In May 2024, Tecnocampus is set to host a co-creation workshop designed to assess the initial outcomes of the pilot study. This workshop also marks the presentation of the second project result, titled "Toolkit: Successful Adoption of Mobile Technology in Practice-Based Learning".

The primary objective of this workshop is to actively involve end-users in the validation process of the resulting application. It will be conducted after the conclusion of the first pilot phase, with the intention of leveraging the findings for the subsequent reiteration stage. Furthermore, this collaborative workshop aims to facilitate knowledge sharing and the identification of strengths, weaknesses, opportunities, and threats associated with the diverse organizational and administrative aspects of practice placements. It will encompass various stakeholders with distinct functions, roles, and tasks, along with the different processes that link these participants within the context of practice-based learning.

The anticipated outcomes of this activity include:

❖ Knowledge base on organizational diversity: The session will generate a knowledge base detailing the strengths, weaknesses, opportunities, and threats stemming from the organizational and administrative variations among practice placements.
❖ Consensus on personalized mobile applications: The session will lead to a consensus on the development of personalized and customized mobile applications in practice placement.
❖ Sharing of best practices: Participants will share and exchange best practices related to the digitalization of practice placements, contributing to the enhancement of education in this context.
❖ Reflection on mobile App use: The workshop will foster consensus and reflection on the use of mobile applications in educational settings, emphasizing the importance of Technology-Enhanced Learning (TEL) in professional and vocational learning practices.
❖ This immersive workshop will be a dynamic and collaborative experience, driving forward the successful integration of mobile technology in practice placement.

General issues

❖ Participants: Students, clinical tutors, link teachers or academic assessors.
❖ This workshop will allow us to involve the end user in the validation of the resulting application.
❖ Dates: From 28/05/2024 to 31/05/2024.
❖ This workshop will be held once the first pilot is finished and the results will be used for the reiteration phase.
❖ Aim: To analyze diversity-related strengths, weaknesses, opportunities, and threats in practice-based learning across various organizational and administrative contexts.

Furthermore, this workshop will allow us to share and identify strengths, weaknesses, opportunities, and threats of the diversity according to the organizational and administrative differences of the practice placements, different actors involved with functions, roles, and tasks, different processes that connect all the actors and models in practice-based learning.

2. Programme

- ❖ **Title:** Digitalizing Practice Placement: 4-Day Training Session
- ❖ **Dates:** May 28, 2024, to May 31, 2024. Location: Tecnocampus, Pompeu Fabra University
- ❖ **Objective:** The "Digitalizing Practice Placement" training session aims to equip healthcare students, clinical tutors, link teachers, and academic assessors with the knowledge and skills required to integrate digital tools effectively into practice-based learning. This 4-day workshop will facilitate the analysis of diversity-related strengths, weaknesses, opportunities, and threats in practice placement across different organizational and administrative contexts.

3. Learning methodologies

Sessions: In this training session we will use 3 different learning methodologies (1) speaker presentation, (2) dynamization, and (3) group discussion for the consensus. These three learning methodologies are described below:

- ❖ **Speaker Presentation:** A knowledgeable presenter or expert shares information, insights, and key points with the audience. It typically involves one person delivering a structured talk or lecture on a specific topic. Its purpose is to introduce new concepts, or provide an in-depth understanding of a subject matter for further discussions **→ Knowledge transfer.**
- ❖ **Dynamization:** Is an interactive activity involving engaging participants in hands-on and interactive tasks related to the training content. This activity will be used to reinforce learning, encourage active participation, and allow participants to apply theoretical knowledge in practical scenarios **→ Interactive learning.**
- ❖ **Group Discussion:** Is a collaborative method where participants come together to exchange ideas, share perspectives, and reach a consensus on a specific topic or issue. It involves open and structured conversations within a group **→ Consensus building.**

4. Agenda

Day 1. Knowledge base on organizational diversity

The session will generate a knowledge base detailing the strengths, weaknesses, opportunities, and threats stemming from the organizational and administrative variations among practice placements.
Date: Tuesday, 28/05/2024 from 08.30 to 13:00 PM
Meeting location: Building TCM6. Classroom 611

Time	Session*	Presenting
08.30 - 09.00	Overall introduction of the 4D Project	TCM
09.00 - 10.30	Understanding diversity in practice placement across contexts[m1]	TCM
10.30 - 11:00	**Coffee break**	
11.00 - 12.00	Identifying the SWOT of each site. SWOT in practice placement[m3]	All
12.00 - 12.30	Sharing the SWOT of each sites[m2]	All
12.30 - 13.00	Consensus-building on the SWOT in practice placement[m3]	All
12.45 - 13.00	Review of Day 1 outcomes	TCM
13:00 - 14:00	**Lunch**	

m1. Speaker Presentation; m2. Dynamization; m3. Group Discussion.

Description of the content of the session:

08:30 - 09:00. Overall Introduction of the 4D Project
Content: This segment involves a general introduction to the 4D Project, providing an overview of its objectives, scope, and structure.

09:00 - 10:30. Understanding diversity in practice placement across contexts
Content: This segment involves a description of the organizational and administrative diversity evident across various practice placements, with a focus on discerning both differences and similarities between different practice environments. During this interactive segment, students from Poland, Germany, and Spain will each have an opportunity to present the organizational and administrative structures within healthcare settings in their respective countries.

For example, students may delve into the intricacies of healthcare institutions, highlighting the roles played by organizations, professionals and stakeholders. They can delve into any unique cultural or historical influences that contribute to the complexity of the practice placement. They will examine how these stakeholders interact within the practice placement, and they will present any variations in clinical settings practices.

Through this collaborative exchange, students will gain a deeper understanding of the diverse organizational and administrative frameworks that underpin practice placements in their respective countries. Moreover, by comparing and contrasting these frameworks, participants will cultivate cross-cultural awareness and foster dialogue aimed at identifying best practices and innovative solutions in practice placements.

11:00 - 12:45. Identifying and sharing the SWOT of each site. The SOWT in practice placement
Content: Participants work in groups to identify and analyze the strengths, weaknesses, opportunities, and threats of each practice site, utilizing the SWOT analysis framework (figure 1). Groups present their findings from the SWOT analysis, encouraging discussion and exchange of ideas among participants (Figure 2). This process aims to identify key factors influencing practice placements and promote collaborative problem-solving.

Example of the dynamization support

Figure 1. Brainstorming   Figure 2. SWOT in Practice Placement(s)

12:45 - 13:00. Review of Day 1 Outcomes
Content: A brief review of the objectives and expected outcomes for the next day's session.

Day 2. Consensus on personalized mobile applications

The workshop will lead to a consensus on the development and content of personalized and customized mobile applications.
Date: Wednesday, 29/05/2024 from 08.30 to 13:00 PM
Meeting location: Building TCM6. Classroom 611

Time	Session*	Presenting
08.30 - 08.45	Introduction to the workshop	UDE
08.45 - 09.15	Overview of digitalization in healthcare practice placement(m1)	UDE
09.15 - 10.30	Identifying the unique needs of each sites(m2)	All
10.30 - 11:00	**Coffee break**	
11.00 - 12.00	Sharing the unique needs of each sites(m2)	All
12.00 - 12.45	Consensus-building on the development of personalized mobile apps(m3)	All
12.45 - 13.00	Review of Day 2 outcomes	UDE
13:00 - 14:00	**Lunch**	

*m1. Speaker Presentation; m2. Dynamization; m3. Group Discussion.

Description of the content of the session:

08.30 - 08.45. Introduction to the Workshop
Content: This session kicks off Day 2 with an introduction to the workshop's objectives and agenda, setting the stage for discussions on the development of personalized and customized mobile applications in healthcare.

08.45 - 09.15. Overview of Digitalization in Healthcare Practice Placement
Content: Participants will receive an overview of the role of digitalization in healthcare practice placement. This segment will explore the current landscape of the use of Learning Toolbox and Learning Goal Widget in each country describing the 3 key aspects as Onboarding, reflective practice and feedback, and learning goals and evaluations.

09.15 - 10.30. Identifying the unique needs of each sites
Content: Participants will engage in discussions to identify and understand the unique needs and challenges faced by each practice site regarding the onboarding and welcoming day, the feedback and reflective practice and the learning goals and evaluation (Figure 3).
This segment aims to gather insights into specific requirements and preferences that can inform the development of personalized mobile applications.

Example of the dynamization support
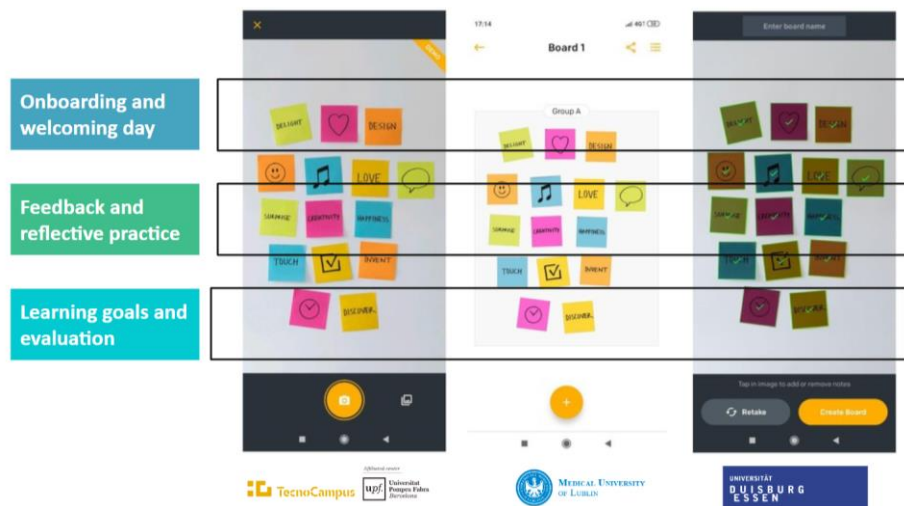
Figure 3. Co-creation

11:00 - 12:00. Sharing the unique needs of each site

Content: Participants will have the opportunity to share the insights gathered from their respective practice sites regarding unique needs and requirements. This session encourages collaboration and knowledge-sharing among participants.

12:00 - 12:45. Consensus-building on the development of personalized mobile apps

Content: Building on the shared insights, participants will work together to reach a consensus on the development of personalized mobile applications that address the identified needs and challenges. This segment aims to leverage collective expertise and input to inform the app development process effectively.

12:45 - 13:00. Review of day 2 outcomes

Content: A brief review of the outcomes and key insights generated during Day 2's sessions, preparing participants for further discussions or actions as needed.

Day 3. Sharing of best practices

Participants will share and exchange best practices related to the practice placements, contributing to the enhancement of education in this context.
Date: Thursday, 30/05/2024 from 08.30 to 13:00 PM
Meeting location: Building TCM6. Classroom 611

Time	Session*	Presenting
08.30 - 08.45	Introduction to the workshop	MUL
08.45 - 09.15	Best practices in practice placement[m1]	MUL
09.15 - 10.30	Mapping the practicum (moments, roles and tasks)[m2]	All
10.30 - 11:00	**Coffee break**	
11.00 - 12.00	Sharing the best practices of each site[m2]	All
12.00 - 12.45	Consensus-building on implementing best practices[m3]	All
12.45 - 13.00	Review of Day 3 outcomes	MUL
13:00 - 14:00	**Lunch**	

*m1. Speaker Presentation; m2. Dynamization; m3. Group Discussion.

Description of the content of the session:

08:30 - 08:45. Introduction to the Workshop
Content: This session commences Day 3 with an introduction to the workshop's objectives, emphasizing the importance of sharing best practices in enhancing education within the context of practice placements.

08.45 - 09.15. Best practices in practice placement
Content: Participants will receive an overview of best practices related to practice placements. This session aims to highlight successful strategies and methodologies that have proven effective in improving the educational experience.

09:15 - 10:30. Mapping the Practicum (Moments, Roles, and Tasks)
Content: Participants will engage in mapping out the practicum, identifying key moments, roles, and tasks involved. This activity provides a comprehensive overview of the practice placement experience, facilitating a deeper understanding of the educational context (Figure 4).

Figure 4	Before practice placement			During practice placement			After practice placement		
Moments (What)	Preparing clinical placement	Check-List before practice	Pre orientation Session	Welcoming day	Ongoing Support	Feedback & reflective practice	Learning goals & Assessment	??	??
Moments (When)	2 weeks before	1 weeks before	1 day before	1st day	???			During practice	During practice
Roles (Who)	Student	Student	Student	Manager(s)	Clinical tutor	Clinical tutor	Clinical mentor	Link teacher	Link teacher
Insights									

11.00 - 12.00. Sharing the best practices of each site

Content: Participants will share and discuss best practices observed at each practice site. This session encourages knowledge-sharing and peer-to-peer learning, allowing participants to gain insights from successful initiatives across different contexts. In this collaborative session, participants will identify and analyze the differences, similarities, and challenges in the best practices observed at each site. This discussion aims to extract valuable insights and lessons learned for implementation in future practices.

12.00 - 12.45. Consensus-building on implementing best practices
Content: Participants will work together to build consensus on implementing best practices identified during the session. This collaborative effort aims to ensure alignment and commitment towards incorporating effective strategies into practice placements.

12:45 - 13:00. Review of day 2 outcomes
Content: A brief review of the outcomes and key insights generated during Day 2's sessions, preparing participants for further discussions or actions as needed.

Day 4. Reflection on mobile app use

The workshop will foster consensus and reflection on the design of the best mobile applications in practice placement.
Date: Friday, 31/05/2024 from 08.30 to 13:00 PM
Meeting location: Building TCM6. Classroom 611

Time	Session*	Presenting
08.30 - 08.45	Introduction to the workshop	IGTP
08.45 - 09.15	Summary of the 3 days: Day 1 (SWOT), Day 2 (Needs), Day 3 (Mapping)[m1]	IGTP
09.15 - 10.30	Improving the mobile application of each site[m2]	All
09.15 - 09:30	**Coffee break**	
11.00 - 12.00	Sharing the best practices of each site[m2]	All
11.45 - 12.45	Consensus-building on action plans for digitalization[m3]	All
12.45 - 13.00	Review of Day 4 outcomes	IGTP
13:00 - 14:00	**Lunch**	

*m1. Speaker Presentation; m2. Dynamization; m3. Group Discussion.

Description of the content of the session:

08:30 - 08:45 Introduction to the Workshop

Content: Day 4 begins with an introduction to the workshop's objectives, emphasizing the focus on fostering consensus and reflection on the design of the best mobile applications in practice placement.

08:45 - 09:15. Summary of the 3 Days: Day 1 (SWOT), Day 2 (Needs), Day 3 (Mapping).
Content: Participants will receive a summary of the key discussions and outcomes from the previous three days, providing context for the day's focus on improving mobile applications in practice placement.

09:15 - 10:30. Improving the mobile application of each site
Content: Participants will work collaboratively to identify areas for improvement in the mobile applications of each practice site. This session aims to generate actionable insights and recommendations for enhancing the functionality and usability of the apps (Figure 5).

Example of the dynamization support

Figure 5. Improving the mobile application

11.00 - 12.00. Sharing the Best Practices of Each Site
Content: Participants will share and discuss best practices observed at each practice site related to mobile app use. This session encourages knowledge-sharing and peer-to-peer learning, allowing participants to gain insights from successful initiatives.

11:45 - 12:45. Consensus-Building on Action Plans for Digitalization
Content: Participants will engage in group discussions to build consensus on action plans for digitalization based on the insights gained throughout the workshop. This collaborative effort aims to develop clear and actionable strategies for implementing digital solutions in practice placements.

12:45 - 13:00. Review of Day 4 Outcomes
Content: A brief review of the outcomes and key insights generated during Day 4's sessions, highlighting actionable takeaways and next steps for participants.

In clinical practice placements, learning processes, tasks and mentorships must be carried out in a way that it is coordinated with educational and clinical processes and entrenched in the appropriate contexts.

5. Summary of the 4 days

5.1. Summary of Day 1: SWOT Analysis

Strengths

❖ UDE: Offers well-structured practical placements, superior infrastructure, skills labs, and opportunities for students to design their career paths. Evaluations for courses and internships provide valuable feedback.

❖ MUL: Provides opportunities to experience various hospital wards, international collaboration, specialized departments, experienced tutors, and free modern medical simulation centers. Students do not have to pay for anything and have a set schedule.

❖ TCM: Allows students to balance work and study, offers practice-based learning with internships in different settings with enough hours and shifts, and ensures individual mentorship (one-to-one and link teacher).

Strengths Word Cloud

Figure 6. Strengths Word Cloud

These programs excel in providing comprehensive support and opportunities for their students:

❖ **Practical Experience and Facilities:**
   o UDE offers well-structured practical placements and superior infrastructure with skills labs.
   o MUL provides extensive clinical exposure across various hospital wards, access to specialized departments, and modern medical simulation centers.
   o TCM emphasizes practice-based learning with internships in diverse settings and ensures students can balance work and study effectively.

❖ **Career Development and Support:**
   o UDE enables students to design their career paths with valuable feedback from course evaluations and internships.
   o MUL supports international collaboration and offers a structured schedule without financial burden to students.
   o TCM provides individual mentorship through one-to-one interactions and link teachers, guiding students throughout their educational journey.

These strengths collectively ensure that students receive a well-rounded education that prepares them for professional success in the medical field, blending theoretical knowledge with practical experience and personalized support.

Weaknesses

- ❖ UDE: Issues with inconsistent practical placements, underqualified teaching staff, varying didactic concepts, and insufficient staffing.
- ❖ MUL: Busy schedules, assessments by teachers not involved in practice, lack of changing facilities, unpaid students, and overcrowded wards.
- ❖ TCM: Students do not choose practice placement (Risk of repeating specialties), non-evidence-based nursing practices, different clinical mentors, short internship periods and logistical issues with seminars and portfolios.

Weaknesses Word Cloud

Figure 7. Weaknesses Word Cloud

The weaknesses across all three programs are summarised as:

- ❖ **Practical Training Issues:**
  - o Inconsistent placements: All programs face challenges with inconsistent practical placements, which can affect the quality and continuity of hands-on learning.
  - o Underqualified staff: There are concerns about underqualified teaching staff across the board, impacting the delivery of education.
  - o Didactic variability: Varying didactic concepts and teaching methods may lead to inconsistency in learning experiences.
- ❖ **2.Operational Challenges:**
  - o Busy schedules: Students across these programs experience busy schedules, potentially affecting their ability to fully engage in learning.
  - o Assessment by mon-practice staff: Assessments conducted by teachers not directly involved in practical training may not accurately reflect students' clinical competencies.
  - o Facility and resource limitations: Issues such as lack of changing facilities, overcrowded wards, and logistical challenges with seminars and portfolios hinder optimal learning conditions.
- ❖ **Program-Specific Issues TCM:** TCM faces additional challenges such as limited choice in practice placements, non-evidence-based nursing practices, variability in clinical mentorship, short internship periods, and logistical issues with seminars and portfolios.

Addressing these weaknesses would require improvements in infrastructure, staffing qualifications, standardization of teaching methods, better scheduling, enhanced assessment practices, and addressing specific programmatic issues like practice placement choices and evidence-based practice in nursing. Efforts to mitigate these weaknesses would enhance the overall educational experience and better prepare students for their professional careers.

Opportunities

- ❖ UDE: Digitalization, decreasing hierarchy, mentorship opportunities, and enhanced inter-professional learning.
- ❖ MUL: Employment opportunities, accreditation organizations, ERASMUS+, and recognition abroad.
- ❖ TCM: Forum Talent for career insights, hospital seminars, exposure to different nursing practices and healthcare settings, and future employment opportunities.

Opportunities Word Cloud

Figure 8. Opportunities Word Cloud

The opportunities across all three programs are summarised as:

- ❖ **Enhanced Educational Methods:**
  - o Digitalization: Integration of digital tools to enhance learning and teaching methods.
  - o Inter-professional learning: Opportunities to collaborate across different healthcare professions, fostering interdisciplinary skills and teamwork.

- ❖ **Career Development and International Exposure:**
  - o Employment opportunities: Access to diverse job prospects locally and internationally.
  - o Accreditation and recognition: Potential accreditation from recognized organizations and enhanced international recognition.
  - o ERASMUS+ and international exchange: Participation in ERASMUS+ and similar programs for international exchange and collaboration, broadening cultural and educational perspectives.

- ❖ **Professional Development and Networking:**
  - o Mentorship and career insights: Structured mentorship programs and forums providing career insights and networking opportunities.
  - o Hospital seminars and practical exposure: Participation in hospital seminars and exposure to diverse nursing practices and healthcare settings, enriching practical learning experiences.
  - o Future employment: Pathways for future employment placements and career advancement within the healthcare sector.

These opportunities collectively support students in developing a well-rounded education, gaining practical experience, and preparing for successful careers in healthcare, both locally and globally. Each program offers distinct advantages that contribute to the professional growth and competency of their students.

Threats

- ❖ UDE: Potential abuse of monetary incentives, increasing student numbers, inconsistent quality in MD programs, staff shortages, and inappropriate use of students as staff.
- ❖ MUL: Limited practice placements, insufficient mentors, competitive practice environments, emigration, psychological impacts of the Ukrainian war, and lack of psychological assistance.
- ❖ TCM: Discrepancy between theory and practice, impersonalized assessments, and high nurse-patient ratios.

Threats Word Cloud

Figure 9. Threats Word Cloud

The threats across all three programs are summarised as:

- ❖ **Resource and Operational Challenges:**
  - o Monetary incentive abuse: Risk of financial incentives being misused, potentially affecting program integrity and fairness.
  - o Increasing student numbers: Strain on resources due to growing student populations, which may impact the quality of education and support services.
  - o Staff shortages: Challenges associated with shortages of qualified teaching and support staff, affecting the delivery of education and mentorship.
  - o Limited practice placements: Insufficient availability of practice placements, limiting hands-on learning opportunities for students.

- ❖ **Quality and Environment Issues:**
  - o Inconsistent program quality: Variability in the quality of educational programs, impacting student outcomes and satisfaction.
  - o Competitive practice environments: Challenges within clinical settings that are highly competitive, potentially affecting student learning experiences.
  - o Discrepancy between theory and practice: Gap between theoretical knowledge and practical application, which can hinder effective learning and preparedness for real-world scenarios.
  - o High nurse-patient ratios: Impact of high nurse-patient ratios on the quality of nursing care and the ability of students to learn effectively in clinical settings.

- ❖ **Psychological and Societal Factors:**
  - o Emigration and war impacts: Potential loss of talent due to student or faculty emigration and psychological impacts from external conflicts like the Ukrainian war.
  - o Lack of psychological support: Insufficient availability of psychological assistance for students facing stress or trauma, impacting overall well-being and academic performance.
  - o Impersonalized assessments: Challenges with assessments that may not accurately reflect individual student capabilities, affecting fairness and educational outcomes.

These threats collectively pose significant challenges to the educational institutions, impacting student learning experiences, faculty effectiveness, and overall program quality. Addressing these issues requires proactive management, strategic planning, and adequate support systems to mitigate risks and ensure a conducive environment for learning and professional development.

Similarities and Differences

Similarities

❖ **Strengths**:
  o Practical Exposure: All three institutions emphasize practical placements, allowing students to gain hands-on experience.
  o Specialization: They provide opportunities for students to specialize in their chosen fields through structured courses or varied placements.
  o Infrastructure and Resources: modern facilities and resources like simulation centers (where students can practice skills before going to practice placements) and specialized departments.

❖ **Weaknesses:**
  o Staffing Issues: UDE and MUL face challenges with staffing, such as insufficient staff or unqualified teachers.
  o Inconsistent teaching and assessment in different practice placements: because of having different clinical mentors, insufficient teachers and staff for all the students, different programmes and students at the same practice placement, affecting the quality of education and student well-being.

❖ **Opportunities:**
  o Future Employment: All institutions highlight potential employment opportunities arising from practical placements and student performance.
  o Collaboration and Learning: UDE and MUL emphasize learning from other students and professionals, as well as opportunities for international collaboration (ERASMUS+).

❖ **Threats:**
  o Quality Concerns: UDE and MUL are concerned about the impact of increasing student numbers and staff shortages on the quality of education.
  o External Factors: Both MUL and TCM face external challenges like the Ukrainian war's impact on students and the nurse-patient ratio affecting education.

Differences

❖ **Strengths:**
  o Work-Life Balance: TCM stands out by offering a balance between work and study, which is not highlighted by UDE and MUL.

❖ **Weaknesses:**
  o Evaluation Methods: MUL faces issues with teachers assessing students without direct practice involvement, while UDE struggles with inconsistent practical learning outcomes.
  o Learning Environment: TCM's non-evidence-based practices and logistical issues with seminars are distinct challenges not mentioned by UDE and MUL.

❖ **Opportunities:**

- o Digitalization: UDE is uniquely positioned to benefit from digitalization in clinical education, which is not mentioned by MUL and TCM.
- o Seminars and Forums: TCM offers unique opportunities like the Forum Talent and hospital seminars, which are not highlighted by UDE and MUL.

❖ **Threats:**
- o Monetary Incentives: UDE faces specific threats related to the potential abuse of monetary incentives, a concern not shared by MUL and TCM.
- o Psychological Impact: MUL uniquely identifies the lack of psychological assistance and the impact of the Ukrainian war as significant threats.

5.2. Summary of Day 2: Consensus on Personalized Mobile Applications

Needs. Understanding of the need, ideas and insights:

❖ **Onboarding/Welcoming:**
   o UDE: Easy access and registration with clear instructions via email, Information on location, time, required documents, and a contact person (link teacher/tutor).
   o MUL: Address interface issues to provide a faster and more intuitive experience, Option to choose the language.
   o TCM: Virtual maps of practice placements, updated schedules, and department functions, Information on locker rooms and uniforms.Personal greetings and introductions to clinical mentors.

❖ **Reflection and Feedback:**
   o UDE: Searchable and concise reflection tools with reminders for deadlines. Clinical cases and glossaries.
   o MUL: Ability to see feedback notes from teachers and leave comments, Option to write personal notes and upload documents (e.g., sick leave), Universities to provide equipment for wards where phones are not allowed.
   o TCM:Periodic feedback, Training for clinical mentors to improve their teaching capabilities, Chatbox for immediate guidance (similar to ChatGPT)

❖ **Learning Goals and Evaluation:**
   o UDE: Clear, achievable learning goals with pre-and post-evaluation scores, Visual images of student progress and open comments between students and teacher, Push notifications for reminders.
   o MUL:Faster interface, intuitive navigation, Space to upload documents and view feedback notes,Provide personal notes and feedback from students to teachers.
   o TCM: Evaluation methods tailored to each practice placement, Structured evaluation tools with activities and rubrics, Economic incentives and proper training for clinical mentors.

Summary of the Needs: Understanding

Figure 10. Understanding Word Cloud

Prototyping: Organizing into three key elements:

❖ **Onboarding/Welcoming:**

- o UDE: Efficient support and walkthroughs with administrative assistance, Glossaries and QR codes for easy information access.
- o MUL: Faster, intuitive interface, Interactive user manuals and updated class schedules.
- o TCM: Interactive maps, QR codes, and updated schedules.Clear information on arrival and practice placement details.

❖ **Reflection/Feedback:**
- o UDE: Digital bridge linking theoretical and practical knowledge. Search functions and reminders for reflection deadlines.
- o MUL: Spaces for document uploads and viewing feedback notes. Notifications for new messages and uploaded files.
- o TCM: Periodic feedback, clinical mentor training, and chat boxes for guidance.

❖ **Learning Goals/Evaluation:**
- o UDE: Personal, straightforward evaluation methods, Visual progress tracking and open communication channels.
- o MUL: Learning Goals/Evaluation:Stack for student communication and support, equipment provision for practical placements.
- o TCM: Divided app stages for documentation, feedback, evaluation, and farewell. Structured feedback tools with detailed activities.

Summary of the Needs: Ideating

Figure 11. Ideating Word Cloud

Summary of the Needs: Prototyping

Figure 12. Prototyping Word Cloud

Similarities and Differences of NEEDS Between MUL, UDE, and TCM

Similarities:

❖ **Onboarding Process:** Each institution highlights the importance of a smooth onboarding process, providing necessary information and support to new students.

❖ **Learning Goals and Evaluation:** They emphasize setting clear, achievable learning goals and having structured methods for evaluation.

❖ **Technological Integration:** All institutions recognize the need for efficient and intuitive mobile applications to support educational activities.

Differences:

❖ **Onboarding and welcoming day:**
  o UDE: Focuses on easy access, clear logistics, and providing contact persons.
  o MUL: Emphasizes faster interfaces, intuitive navigation, and language options.
  o TCM: Includes virtual maps, updated schedules, and personal greetings from mentors.

❖ **Reflection and feedback:**
  o UDE: Emphasizes searchable, concise tools with deadline reminders and clinical cases.
  o MUL: Offers capabilities to view teacher feedback, leave comments, and upload documents.
❖ TCM: Focuses on periodic feedback, providing practice guidelines, and training mentors to enhance their teaching abilities.

❖ **Learning goals and evaluation:**
  o UDE: Stresses clear goals with progress tracking and open communication channels.
  o MUL: Provides spaces for document uploads, feedback notes, and student communication.
  o TCM: Uses tailored evaluations for each practice placement, structured feedback tools, and incentives for mentors.

❖ **Support and resources:**
  o UDE: Prioritizes bridging theoretical and practical knowledge through robust support systems.
  o MUL: Focuses on providing equipment and interactive user manuals.
  o TCM: Highlights the importance of mentor training, economic incentives, and detailed onboarding information.

Needs Takeaway Messages

❖ UDE:
  o Ensure technical and personal support.
  o Bridge theoretical and practical knowledge.
  o Facilitate easy and effective evaluations.
❖ MUL:
  o Enable document uploads and notifications.
  o Provide notes and feedback capabilities for both students and teachers.
❖ TCM:
  o Train clinical mentors to deliver high-quality education.
  o Offer comprehensive onboarding information.
  o Provide structured tools for feedback and evaluation activities.

5.3. Summary of Day 3. Sharing of best practices

Introduction of the groups - 4D Cocktails

❖ **Philip on the Rocks:**

You can experience the smooth essence of Polish vodka with Aga, made from the finest grains for a pure, velvety taste. She is the Belvedere Polish Vodka.

Philip forms the core of this cocktail, he is the quiet talent that complements the strong spirit.

Paula adds a touch of Spanish charm, infusing the drink with the fresh, sweet notes of strawberries, reminiscent of a vibrant spring sunrise in Spain.

❖ **Max and Storming:**

Stephanie brings the warm with a Colombian dark rum, rich in spice and depth.

Viktoria introduces the gentle sweetness of a serene Polish winter, enriching the cocktail flavour.

Max combines everything and puts it all together with a strong ginger beer from Essen, offering a robust kick that stimulates the five or six senses.

❖ **Iris Spritz:**

Iris is the dry Spanish white wine that gives a sophisticated foundation for this spritz.

Nele is the necessary ingredient to make a good Spritz, she is the bubbles. Nele enters onto the scene with effervescent bubbles, essential for the perfect spritz texture.

Marika refreshes the mix with the mint, adding a cool, refreshing finish that makes each sip an invigorating delight.

Summary of the Mapping in Best Practices for Clinical Education

Before Practice Placement:

❖ **Phillips on the Rock:**
  o Personalized course planning and connecting with mentors and students before the internship.
  o Practical and theoretical preparation provided through an app that includes schedules, important documents, and expectations.

❖ **Max and Storming:**
  o Preparation of all documentation two weeks before the internship and centralized collection of documents.
  o Increase the number of teaching hospitals for more choices.

❖ **Iris Spritz:**
  o Providing a detailed timetable, departmental information, and required documents a day before the welcome day.
  o Information about the practice placement, including required competencies, provided before application.

Summary Before Practice Placement

Figure 13. Before Practice Placement Word Cloud

During Practice Placement

❖ **Phillips on the Rock:**
  o Onboarding session including ward tours and engagement with clinical mentors.
  o Mid-placement qualitative evaluation with digital documentation.

❖ **Max and Storming:**
  o Tour guide on the first day and consistent training with clinical tutors.
  o Providing practical seminars and qualified tutors.

❖ **Iris Spritz:**
  o Clear emergency protocols and easy access to contact persons.
  o Continuous feedback and training from clinical tutors.

Summary During Practice Placement

Figure 14. During Practice Placement Word Cloud

After Practice Placement

❖ **Phillips on the Rock:**
  o End evaluation with feedback from both sides and the ability to evaluate mentors and placements.

❖ **Max and Storming:**
  o Individualized evaluation and qualitative feedback.
  o Practical exams and student diaries.

❖ **Iris Spritz:**
  o Clear process for document collection and equipment return, with a digital "goodbye document."

Summary After Practice Placement

Figure 15. After Practice Placement Word Cloud

Similarities and Differences

Similarities

❖ Preparation: All groups stress the importance of detailed preparation before starting the practice placement, including documentation and practical information.
❖ Onboarding: Emphasis on thorough onboarding sessions with tours and clear instructions.
❖ Feedback:Regular, constructive feedback during the placement is considered crucial across all groups.
❖ Evaluation: Personalized and qualitative evaluation methods are valued.
❖ Documentation: Centralized and digital management of documents and essential information is a common goal.

Differences

❖ Preparation Details:
  o Phillips on the Rock: Focuses on digital planning and connecting with mentors and peers.
  o Max and Storming: Emphasizes the need for a variety of teaching hospitals and early documentation preparation.
  o Iris Spritz: Highlights the need for detailed timetables and departmental information upfront.

❖ During Placement Support:
  o Phillips on the Rock: Advocates for qualitative evaluations and training for clinical mentors.
  o Max and Storming: Focuses on consistent tutor engagement and practical skill training.
  o Iris Spritz: Emphasizes emergency protocols and continuous daily feedback.

❖ Post-Placement Processes:
  o Phillips on the Rock: Includes feedback from both sides and evaluation of mentors.
  o Max and Storming: Stresses individualized feedback and practical exams.
  o Iris Spritz: Focuses on clear documentation processes and digital farewell information.

Takeaway Messages

❖ **Phillips on the Rock:**
  o Use customizable digital planners.
  o Provide digital seminars for mentor training.
  o Offer personalized evaluations.

❖ **Max and Storming:**
  o Centralized management of documentation and QR-coded student profiles.
  o Direct contact between students and tutors for feedback.

❖ **Iris Spritz:**
  o Comprehensive onboarding documents.
  o Clear emergency contacts and procedures.
  o Summarised+-
  o "goodbye document" with essential information.

5.4. Summary of Day 4. Reflection on mobile app use

Improving the mobile application of each site

Participants will work collaboratively to identify areas for improvement in the mobile applications of each practice site. This session aims to generate actionable insights and recommendations for enhancing the functionality and usability of the apps.

Onboarding and welcoming day:
- ❖ MUL:
    - o Clear interface.
    - o Ability to personalise the home page.
    - o Contacts details of the clinical tutors.
    - o Schedule of classes, and compatible with the rest of the classes
- ❖ UDE:
    - o Knowledge about the schedule of the clinicFAQ (Onboarding): schedule, first day started kit, document (proof of attendance)
    - o Emergency documentation.
    - o Templates for the presentations
    - o What does the clinical tutor have to do?
- ❖ TCM: Includes virtual maps, updated schedules, and personal greetings from mentors.
    - o Upload and centralised documents for practice placements.
    - o Information about welcoming Day
    - o Having an interactive map about the practice placement
    - o Information about the hospital and specific unit (protocols and materials).

Reflection and feedback:
- ❖ MUL:
    - o Individual feedback with comments during and after practice placement.
    - o A tile or stack with the emergency situations.
    - o Documentation with the procedures reserved for each specific unit.
    - o Visible notifications of the new uploads and chat.
    - o Customise stacks for documentations for the students.

- ❖ UDE:
    - o Glossary: A to Z.
    - o Space for the students to upload a photo (for identification).
    - o Case card (clinical case information).

- ❖ TCM:
    - o Registration of the assistance directly in the App
    - o Connection with the iBox platform.
    - o Having an internal chat(messenger with the link teacher
    - o Clear protocols about accidents
    - o Visual risk factors of "mala praxis".
    - o Middle evaluation: weaknesses, strengths (learning goals).
    - o Link with the Human Resources
    - o Notification of the new information.

Learning goals and evaluation:
- ❖ **MUL:**
    - o More complex evaluation.

      o Clear expectations for the students.
- ❖ UDE:
  - o Space for individual feedback
  - o Visualisation of the learning progress
  - o The "Goodby" document.·
- ❖ TCM:
  - o Evaluation of the CLE: Unit, clinical tutor and practice placement.
  - o Having farewell information.

In summary:

1. Onboarding and Welcoming Day

- ❖ MUL: Focuses on a user-friendly interface, personalization of the home page, easy access to tutor contacts, and a well-integrated schedule.
- ❖ UDE: Offers detailed FAQs about clinic schedules and first-day preparations, emergency information, and presentation templates. The role of the clinical tutor is clarified.
- ❖ TCM: Features include virtual maps, updated schedules, personalized greetings from mentors, centralized document uploads, information about the welcoming day, interactive maps of practice placements, and detailed hospital and unit protocols.

2. Reflective Practice and Feedback

- ❖ MUL: Provides individual feedback with comments during and after placements, emergency information, specific unit procedures, and visible notifications for new uploads and chats. Documentation is customized for student needs.
- ❖ UDE: Includes a comprehensive glossary, space for student photos for identification, and clinical case information cards.
- ❖ TCM: Integrates direct registration of attendance, connection with the iBox platform, internal messaging systems, clear accident protocols, visual risk indicators, middle evaluations, links to Human Resources, and notifications for new information.

3. Learning Goals and Evaluation

- ❖ MUL: Emphasizes complex evaluations with clear expectations set for students.
- ❖ UDE: Provides space for individual feedback and visual tracking of learning progress, along with a "Goodbye" document for conclusion.
- ❖ TCM: Evaluates the Clinical Learning Environment (CLE), including assessments of the unit, clinical tutor, and practice placement, and offers farewell information.

These enhancements aim to streamline the initial introduction to the clinical environment, foster ongoing reflective practice with robust feedback mechanisms, and clearly define and evaluate learning objectives to ensure comprehensive educational outcomes.