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4.1 Structure and Content of the Educational Program

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The design of the DigiCare Educational Program is of utmost importance within the overall scope of the DigiCare project. It forms the foundation upon which the project's objectives and outcomes are built. To create an educational program, which can be implemented in Asian Higher Education Institutions (HEI), the DigiCare consortium drew upon the findings of literature reviews conducted by each Asian partner HEI, empirical expertise provided by the national DigiCare project specialists and theoretical framework of the program development through implementation research. Moreover, the results and feedback obtained from the DigiCare pilots contributed to the development of the educational program. In this chapter we introduce the educational program developed and piloted as part of the DigiCare project.



The DigiCare Educational Program is a structured program that combines the teaching of substance-specific knowledge related to coaching for self-management in people with chronic diseases with digital competence in healthcare (Read more in Chapters 3.1-3.5) and the use of active pedagogical methods in teaching (Read more in Chapter 4.2). A structured educational model has a significant impact on healthcare learning, improving students' understanding and competence in healthcare practice (Musallam et al., 2021) and promoting continuous learning among healthcare professionals (Holskey & Rivera, 2020). It enhances students' clinical skills, critical thinking, boosts their self-efficacy and confidence as well as their teamwork and collaborative skills, which ultimately leads to valuable competence in delivering clinical care (Musallam et al., 2021; Rusch et al., 2018). Furthermore, structured educational programs enhance student satisfaction, which plays a crucial role in evaluating their clinical experiences and performance (Musallam et al., 2021).



Integrating digital technologies into healthcare education is essential as it prepares students for the use of technology in healthcare practice, aligning with the ongoing digitalization trends in society (Morze & Strutyńska, 2021). It also facilitates the transition from theory-based teaching to more active and student-centered teaching methods, promoting self-directed learning (Mingorance Estrada et al., 2019; Nguyen et al., 2016). The digitalization of education goes beyond mere tool and platform utilization; it requires a fundamental transformation in learning and teaching activities, methods, and the roles of teachers and students in the educational process (Díaz-García et al., 2022). Additionally, it highlights the importance of digital health literacy and its development during healthcare education (George et al., 2021).



The DigiCare Educational Program integrates active pedagogical methods into its structured learning model, along with substance-specific content and digitalization in education.



The DigiCare Educational Program integrates active pedagogical methods into its structured learning model, along with substance-specific content and digitalization in education. Active pedagogical methods have a significant impact on improving students' learning outcomes (Mingorance Estrada et al., 2019) and enhancing their satisfaction with the learning process, both individually and in group settings (Hyun et al., 2017). However, implementing these methods requires teacher training and acceptance, confidence in technological skills, and careful preparation in designing class activities (Colomo Magaña et al., 2022; Hao & Lee, 2016; Kim et al., 2021). These active pedagogical methods also contribute positively to teachers' competence

and their ability to facilitate active knowledge construction and collaborative learning (Niemi et al., 2016).

Competence-based and conceptually designed educational programs have the potential to facilitate effective transformative learning. Particularly, when combined with active learning methods that prioritize students' experiences, discussions, and activities, these programs create an environment for students to construct knowledge and enhance their professional capabilities (Peterson & Lundquist, 2021). This forms the foundation of the DigiCare Educational Program.

Furthermore, when integrating a new competence area like coaching into the curriculum, it is essential to consider the involvement and influence of institutional leadership, as well as allocate adequate time for the implementation of this change (Calzone et al., 2018).

What does the DigiCare Educational Program offer?

The DigiCare Educational Program offers flexibility, allowing for adaptation and customization to suit different curricula, even beyond the Asian context. While initially implemented in Asian partner universities, its principles and components can be applied to healthcare education programs worldwide. The core concepts of self-management, motivation, positive health, professional and social-economic relationships, digital care, and coaching are relevant in various healthcare settings. This program is a critical aspect of the DigiCare project, serving as the foundation for educating healthcare students on digitalized healthcare and empowering them to effectively coach patients both in-person and online. To achieve this, a diverse range of teaching methods and materials were employed, and the program was structured into six cycles.

Healthcare teachers and institutions in and outside the Asian context have the opportunity to utilize the DigiCare Educational Program as a

framework, making necessary adjustments and additions to align with their unique curriculum requirements, local healthcare practices, and student needs. The program's adaptability ensures its relevance and effectiveness in various educational settings.

Developing the Educational Program

The design of the educational program was based on the Consolidated Framework for Implementation Research (CFIR) (Figure 13). The CFIR offers a comprehensive framework for comprehending the various factors that influence the implementation of interventions. It encompasses team-level influences and determinants at the system level (Means et al., 2020.) This framework proves particularly valuable when planning and assessing multiple implementation initiatives aimed at changing practices (Keith et al., 2017).

The CFIR framework consists of five domains that cover different aspects of intervention implementation (Keith et al., 2017; Means et al., 2020).

- **Domain 1:** focuses on the characteristics of the intervention itself, including its source, evidence strength, relative advantage, adaptability, trialability, complexity, design quality, and cost.
- **Domain 2:** explores the outer setting, considering factors such as needs and resources of the university, cosmopolitanism, peer pressure, and external policies and incentives.
- **Domain 3:** delves into the inner setting of the organization or university, examining its structural characteristics, networks and communication, culture, implementation climate, and readiness for implementation.
- **Domain 4:** centers on the individuals involved, including their knowledge, beliefs, self-efficacy, state of change, and identification with the organization.
- **Domain 5:** addresses the implementation process, covering planning, stakeholder engagement, execution, and reflection and evaluation. (Keith et al., 2017; Means et al., 2020)

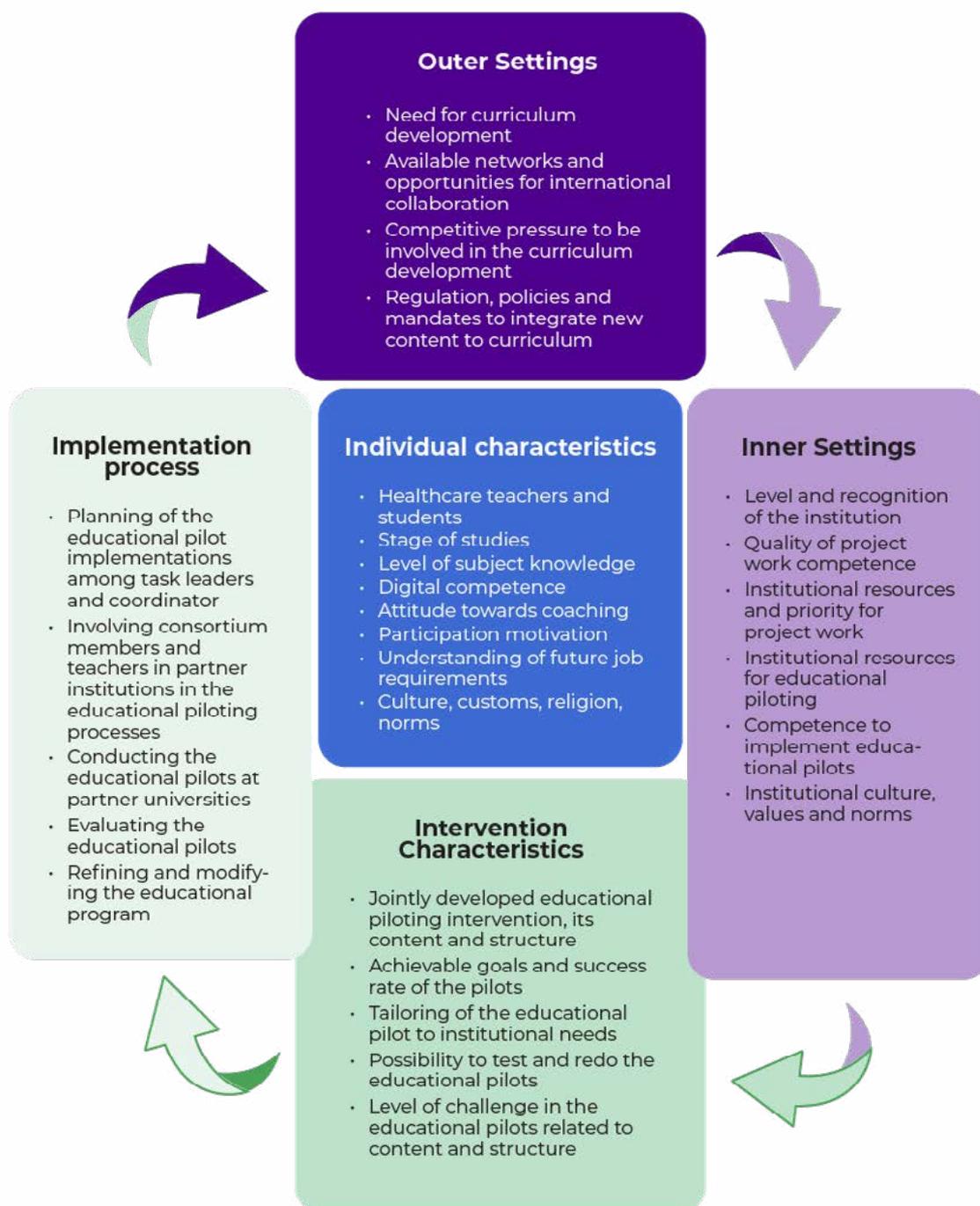


Figure 13. The Characteristics of the Developing Process of the DigiCare Educational Program. (Keith et al., 2017; Means et al., 2020, modified)

The DigiCare Educational program was developed collaboratively, involving a wide range of stakeholders, including consortium members, educators, researchers, and healthcare students. Through active participation, feedback, and iterative improvements throughout the pilot cycles, the program was tailored to meet the specific needs of the Asian context, benefiting from the collective knowledge of the diverse group involved (Russell et al., 2023). This collaborative approach fostered a sense of ownership and commitment among stakeholders, ensuring that the program's content, methodologies, and strategies aligned with educational goals. Collaborative approach promotes inclusivity, diversity, and co-creation (Joughin et al., 2022), resulting in a program that reflects the collective expertise and insights of those involved (Charli-Joseph et al., 2016).



The development process was initiated by conducting a needs assessment among consortium members, which was informed by the findings of the literature reviews (Read more in Appendices 1-6). The needs assessment aimed to identify the specific requirements and challenges faced in healthcare education by the partner institutions. Through this assessment, valuable insights were obtained, enabling the identification of focus areas and priorities for the educational program.



The evidence informed DigiCare educational program aims to enhance the quality and effectiveness of healthcare education. It integrates successful active teaching methods and interventions that have demonstrated positive outcomes in healthcare education (Farokhzadian et al., 2022). The DigiCare educational program integrates innovative active pedagogical approaches (Gagné et al., 2021) and utilizes digital technologies in both healthcare coaching (George et al., 2021) and education. These innovative approaches and technologies have the potential to enhance learning experiences and outcomes for healthcare students (Mingorance Estrada et al., 2019). By strategically incorporating technology, the program facilitates interactive and engaging educational activities, supports student-centered

and self-paced learning, and provides access to resources and support (Mingorance Estrada et al., 2019).

A key focus of the program is student-centered learning, empowering students, promoting active engagement, and nurturing critical thinking and problem-solving skills. The program creates a supportive learning environment that encourages student participation and autonomy (Hyun et al., 2017).

The development process followed an iterative approach, incorporating stakeholder feedback, pilot testing, and evaluation to continuously improve the program. Furthermore, to suit the characteristics of the Asian context, the program underwent crucial adaptations, guided by the collaboration and expertise of local specialists (Sánchez-Franco et al., 2021). Their insights ensured the program's relevance and effectiveness for Asian students and healthcare professionals, bridging the gap between global best practices and local needs. By doing so, the program aims to enhance healthcare education in Bangladesh and Vietnam, providing a meaningful and impactful learning experience for healthcare professionals and students (Chowdhury, 2016).



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Training of the Healthcare Teachers

Training the healthcare teachers was a fundamental and essential step in the implementation of the DigiCare Educational Program. Acknowledging the significant role that teachers play in effectively delivering the new educational program (Wighus & Bjørk, 2018), specific attention was given to their preparation and professional growth. To ensure effective delivery of the educational program and its components, it is vital for teachers to possess a thorough understanding of the DigiCare Model (Read more in Chapter 3), the relevant learning packages, and the recommended active pedagogical methods (Read more in Chapter 4.2). It is recommended that teachers undergo training using the same protocol and materials as the students, excluding the patient-focused training (Table 1). Furthermore, it is encouraged for teachers to familiarize themselves with the theoretical foundations of the various active teaching methods and integrate them into their instructional practices.



Adopting a “learning-by-doing” approach, which is a classic active learning method discussed by John Dewey (Shank, 1997), is highly suitable for teacher training. This approach enables teachers to engage in hands-on experiences, actively participating in the learning process while gaining practical insights and skills. By immersing themselves in the training activities and exercises, teachers can effectively internalize the concepts, content, and methods of the DigiCare Model, enhancing their ability to effectively deliver the program to their students.

The DigiCare Implementation Plan for Healthcare Students

The training of healthcare students follows the implementation plan specified in Table 1, along with its corresponding explanations below the table. Similar to teachers, student training should span at least three separate days to accommodate the completion of initial tasks.

However, the theoretical component can be divided into multiple teaching sessions, as required. An example PowerPoint presentation is provided in Appendix 7, which can be customized by teachers to align with the students' level of understanding on the topic.

Given that the DigiCare Model can be implemented as an independent course, integrated into an existing curriculum, or used in separate components, the assessment should align with the requirements set by your university. When evaluating students' learning outcomes, it is recommended to assess students' learning diaries through either peer assessment exclusively or a combination of peer and teacher assessment. At a minimum, students should receive feedback on their learning diaries based on the provided criteria.



Table 1. Implementation Plan of the DigiCare Model for students' Theoretical Classes and Training Sessions.

Learning Package content	Learning goals Students...	Preliminary tasks	Pedagogical methods	Resources & Materials	Pre-liminary tasks (min)	Class (min)	Additional tasks for student's own development
1. Introduction	Know the components of the learning packages and how to use the different parts of the package.		Interactive lecture.	Power Point presentation no: 1.		15	
2. DigiCare Model	Know the elements of the DigiCare Model.		Interactive lecture.	Power Point presentation no: 2.		30	
3. Professional communication	Know general principles of professional communication.		Interactive lecture.	Power Point presentation no: 3.		30	DigiNurse e-book permanent link
4. Motivating to lifestyle changes	Know general principles of how to motivate patients for life change.		Interactive lecture.	Power Point presentation no: 4.		30	
5. Positive health	Understand the concepts of positive health and salutogenesis and their relation to self-management.		Interactive lecture.	Power Point presentation no: 5.		30	
6. Self-management	Know general principles of the concept of the self-management.	Read DigiNurse e-book, Chapter 5.4 Self-management, pp. 124-133 Write down 5 bullet points. Why is self-management important in the management of chronic conditions? Teacher will check students' notes before the lesson	Interactive lecture	Power Point presentation no: 6. Flinga or some other interactive wall.	30-60 min	30	DigiNurse e-book permanent link .



Learning Package content	Learning goals Students...	Preliminary tasks	Peda- gogical methods	Resources & Materials	Pre- limi- nary tasks (min)	Class (min)	Additional tasks for student's own devel- opment
7. Coaching	Know general principals of coaching.	<p>Read DigiNurse e-book, Chapter 5.6 Coaching, pp. 148-160.</p> <p>Write down 5 to 10 bullet points:</p> <p>What does coaching mean in the healthcare context according to the chapter?</p> <p>Teacher will check students' notes before the lesson</p>		Power Point presentation no: 7.	30 min	15	<p>Dig-iNurse</p> <p>e-book permanent link.</p>
8. 5A's coaching model	Know general principles of 5A's coaching model.	<p>Read DigiNurse e-book, Chapter 5.7 Coaching models, pp. 161-173.</p> <p>Watch videos of 5A's Model e.g.:</p> <p>The 5 A's and Tobacco Cessation.</p> <p>The 5As of Obesity Management™.</p> <p>Write down 5 to 10 bullet points:</p> <p>How the discussion and interaction between patient and healthcare provider on the video differs from your own experience?</p> <p>Teacher will check students' notes before the lesson</p>		<p>Power Point presentation no: 8</p> <p>Flinga or some other inter-active wall.</p>	30 min	30	<p>Dig-iNurse</p> <p>e-book permanent link.</p>



Learning Package content	Learning goals Students...	Preliminary tasks	Peda- gogical methods	Resources & Materials	Pre- limi- nary tasks (min)	Class (min)	Additional tasks for student's own devel- opment
9. GROW coaching model	Know general principles of GROW coaching model.	<p>Read DigiNurse e-book, Chapter 5.7 Coaching models, pp. 161-173.</p> <p>Watch videos of GROW Model e.g.: The GROW Coaching Model The GROW Model</p> <p>Write down 5 to 10 bullet points: How the discussion and interaction between patient and healthcare provider on the video differs from your own experience? Teacher will check students' notes before the lesson</p>		<p>Power Point presentation no: 9.</p> <p>Flinga or some other inter-active wall.</p>	30 min	30-45	
10. Integrating digital tools into coaching	Know the basics of digital coaching, understand the potential of digitalization in self-management		<p>Inter-active lecture.</p> <p>World café.</p>			30-45	



Learning Package content	Learning goals Students...	Preliminary tasks	Peda- gogical methods	Resources & Materials	Pre- limi- nary tasks (min)	Class (min)	Additional tasks for student's own devel- opment
Training session: Patient coaching and professional interaction Skills practice with peer students	Learn to perform professional communication skills. Apply GROW and 5 A's coaching model in coaching practice.	Revise and watch the videos of Grow model and 5A's model. Write a short starting point story of yourself acting as a coachee: What is your imaginary or real health issue you want to discuss about, problem caused by NCD?	Low fidelity simulation (1)		60-120 min	90	
Clinical Training: Patient coaching and professional interaction skills practice with patient	Are able to perform professional communication skills. Are able to apply GROW coaching model and 5 A's coaching model in coaching practice.	Revise and watch the videos of Grow model and 5A's model.	Clinical practice (3)	Instructions for writing learning diary (4) Instructions for peer review (5)	30 min	60	

Explanations of the table

1. Three-participant groups: coach, coachee and observer; total 3 cycle of practice for 1 group. Each student practices the role of a patient/coachee, coach and observer. Reflection discussion in the three-participant group after each cycle about coaching and professional communication, general reflection at the end of the session and wrap up with the teacher.
2. Instructions and orientation to the task 15 minutes, group role plays and reflection 20 minutes per session, general reflection, and wrap-up 15 minutes.
3. Each student selects 3 patients or relatives with NCD and agrees separate coaching sessions with them. Student agrees a topic for coaching related to patient's or relative's NCD (not the whole disease), e.g., weight management with diabetic patient, salt restrictions for cardiac insufficiency patients etc. Coaching sessions can vary in length. Patient's real-life topic related to a NCD is the starting point of coaching. Student chooses suitable coaching method, GROW or 5 A's, and follows the structure and instructions of the chosen coaching method when coaching the patient or relative.

4. The aim of the learning diary is to make students own learning and reflective thinking process transparent. Students aim to combine their previous knowledge and experiences of coaching into the coaching sessions. The learning diary is not a summary of actions. Students discuss and review the coaching process critically in their learning diary. They present their own thoughts, experiences, and arguments. Anonymity must be considered in the learning diary so that the reader does not recognize the patient.

Questions and ideas to think and answer in learning diary:

- What did you learn during the coaching sessions?
- Was there something you didn't understand?
- What was new or surprising?
- Do you want or need to find out more information on some areas related to coaching patients?
- How this coaching experience benefit you in your future work?
- How could coaching benefit you in your future work?
- What kind of feedback did you get from the patients - how the patients experienced coaching?

Writing:

- Start your learning diary already before the first coaching session and describe your preparations to the clinical session.
- After each coaching session:
 - Ponder and reflect on your coaching session.
 - Describe shortly the coaching sessions.
 - Write your diary entry after each coaching session by utilizing the questions above.
 - Finish your learning diary by reflecting your own learning process while participating clinical session.

5. Students will evaluate each other's Learning Diaries. Each student review one learning diary.

Areas of assessment:

1. Reflection
 - Has the student genuinely considered the issues covered in the coaching session.
 - Has the student genuinely considered the issues covered in their significance in their future work.
 - Reflection also includes expressing and narrating things that remain unclear even if they were later resolved.
 - All elements of Grow/ 5A's model are used in coaching session.
2. Criticism
 - Critical attitude to the issues presented and justified by their own opinions.
3. Evaluation
 - How does the student plan to act in the future to advance her/his skills in coaching long-term patients.

4. Extent

- It is natural that there are no entries for all the topics covered in coaching sessions. As a rule of thumb, about 3/4 or 75% of the topics discussed have been covered.

At least a few sentences on each topic mean about ½ A4 pages of text, making the length of the learning diary a minimum of four pages.

The DigiCare Learning Packages

The DigiCare Educational Program is built upon the concepts and content of the DigiCare Model (Read more in Chapter 3) and incorporates relevant Learning Packages. These learning packages (Figure 14) are developed by combining insights from literature reviews (Read more in Appendices 1-6), needs analysis conducted by Asian experts, empirical expertise, and research findings obtained throughout the project. The set of Learning Packages consists of an Introduction presentation and 9 subject-specific presentations.



Professional communication has been incorporated into the learning packages based on the needs analysis and supported by relevant literature. Recognizing the significance of effective communication in healthcare education, it is given even greater emphasis and dedicated training. The healthcare professional-patient relationship is complex, and the inclusion of communication education as a lifelong professional skill is crucial. This involves utilizing peer feedback and fostering changes in the communication culture to enhance communication competence (Ammentorp et al., 2022). The coaching models within the educational program are informed by the outcomes of the European DigiNurse project, as outlined in the project application. An important enhancement to the learning packages is the integration of digital tools and application into coaching, which stems from valuable insights gained during the pilot phases.



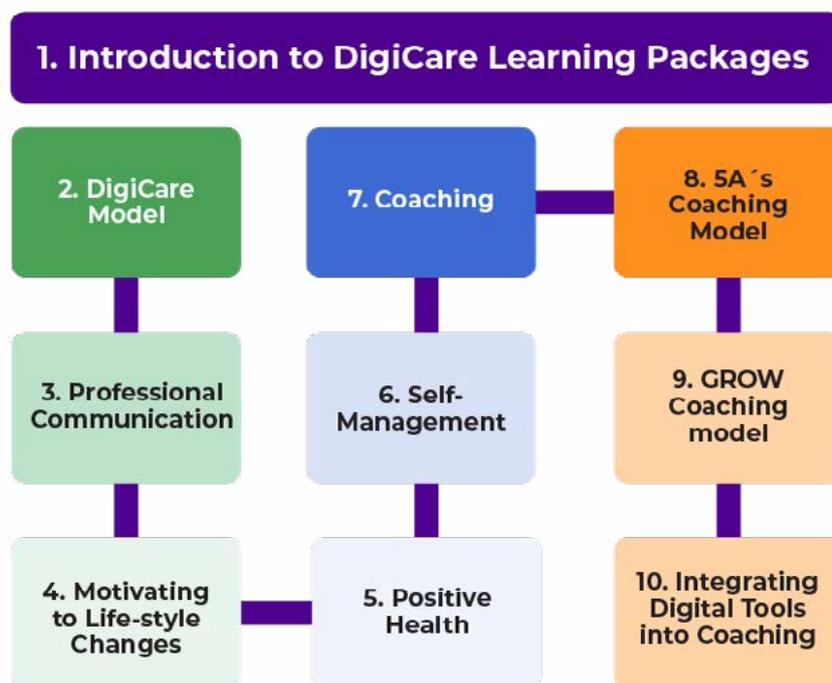


Figure 14. The DigiCare Learning Packages

The learning packages are designed to be adaptable to the specific needs of each Higher Education Institution (HEI) and healthcare student group. While they provide essential information, they are not exhaustive in their coverage. Active pedagogical tools are incorporated into the packages, including low-threshold methods like debates and small group discussions, which can be employed during theory lessons. Each PowerPoint presentation includes a Notes section below the slides, offering ideas for teachers and recommendations for further reading.

The learning packages are freely available for download on the website and SlideShare (See the Appendix 7).. They can be translated, edited, and supplemented with additional content as desired. The packages can be used as a complete set or individually, based on the specific requirements of users. Each learning package is accompanied by an introductory by introductory slides and the final slide provides information about the subsequent package in the series.

Piloting of the DigiCare Model and Learning Packages

The piloting phase of the educational program was a crucial step in its development and refinement. This phase provided an opportunity to test the program's content, structure, and teaching methodologies in a real-world educational setting. Through the active participation of students and teachers in the Asian partner HEIs, valuable feedback and insights were gathered (Read more in Chapter 5), allowing for iterative improvements and adjustments.

During the piloting phase, the content and structure of the educational program were evaluated, ensuring its alignment with the project objectives and the needs of the target audience. Lessons learned from the pilot implementation were invaluable in fine-tuning the program, making it more effective, engaging, and relevant.

The DigiCare piloting protocol (Figure 15) consisted of six distinct pilot cycles. The initial cycles focused on training healthcare teachers, while subsequent cycles (3-4) involved students testing sections of the DigiCare Model and its Learning packages. The fifth cycle took place in an international online setting, and the final cycle encompassed the full implementation of the DigiCare Model. The content and evaluation activities associated with each pilot cycle are detailed in Figure 15.

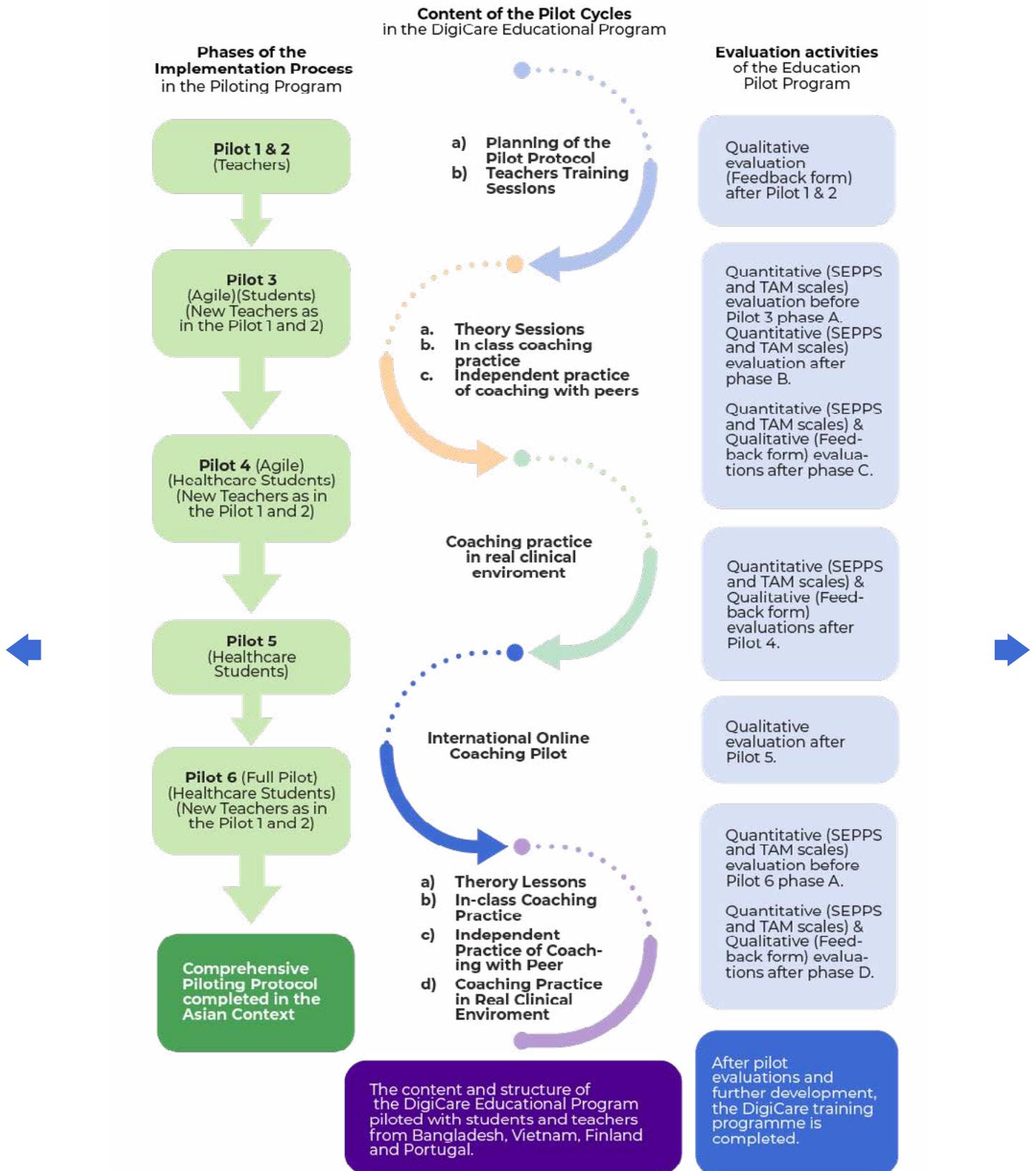


Figure 15. The DigiCare Piloting Protocol

During the implementation of the program, active engagement from both healthcare teachers and students was a priority. Teachers played a crucial role in guiding and facilitating the learning process by integrating coaching models and digital tools, creating interactive and engaging learning environments. Students actively participated by utilizing digital tools to gain practical experience and proficiency in communication, coaching practices, self-management support, and patient care.

The design and piloting of the educational program were essential components of the DigiCare project. The process of conducting literature reviews, coupled with the expertise of national project specialists, served as the foundation for developing a robust and evidence-based educational program suitable for curriculum integration. The piloting phase provided an opportunity to validate and refine the program through real-world testing and valuable feedback. By leveraging these processes, the DigiCare project aimed to develop an educational program that effectively equips healthcare students with the knowledge and skills necessary to navigate the self-management coaching and digital landscape of healthcare.

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