2 Description of the DigiNurse Project

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In this chapter, I will shortly describe the start of DigiNurse project carried out in the period 2016–2018. The initial phase includes an idea generation phase and the submission of the project application. Furthermore, because the development of the DigiNurse Model started at a set-up meeting (Kickoff Meeting), I have included the beginning of literature reviews and the used survey to this chapter, as it was crucial to gain knowledge of the current literature on digital advancements in healthcare and nursing education. It was also important to investigate nursing students' perceptions of their digital competence and educational needs before starting the mode development process. The expected results and impacts affected the completion of project activities from the start to the end of the process.

Furthermore, the theoretical and philosophical concepts of the model were selected at the start of the project. At the end of this chapter, you will find a figure of the main features of the project process. I focused here mainly on the year 2018.

The start of the DigiNurse Project

The idea of the DigiNurse: ICT supported self-management of patients with chronic condition project was created in the UK at North Umbria University, Newcastle upon on Tyne, in 2015. While spending time at the university during an Erasmus teacher exchange, I met two teachers from the Karelia University of Applied Sciences (Karelia), and we decided to collaborate on something later. During our exchange, we also participated in a meeting with healthcare professionals employed by a local hospital and discussed issues such as e-health and related challenges, especially ones emerging in rural and remote regions of a country. E-health seemed to be an issue receiving a lot of current attention in the UK, and there was rapid advancement in the field in the country as well as in Finland.

After the exchange, we (myself and Päivi Sihvo of Karelia) started looking for a project and topic that would enable us to combine the strengths

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of both of these Finnish educational institutions. Tampere University of Applied Sciences (TAMK) had extensive experience of international projects and Karelia had many interesting ongoing digital projects in the digital health sector. Furthermore, many people in the Karelia region were living in rural and remote places, a a result of which some digital health services were being developed for them. We assessed the status of nursing education from the perspective of the digitalized health sector and current nursing education and decided to focus on curriculum development and enhancing the digital competence of student nurses. The word "competence" was used as a synonym for digital literacy when filling out the project application.

The next step in the process was to find project partners and make a choice on an appropriate funding instrument. We formed teams at both of the educational institutions to write an application. The teams used their existing relationships and experiences in international cooperation gathered in previous projects and teacher exchanges. As a result, we invited one university from Portugal (Escola Superior de Enfermagem de Coimbra), one from Belgium (University Thomas More Turnhout) and one from Slovenia (University of Ljubljana) to participate in the project. This selection made the resulting project consortium balanced: one of the participating universities was from the southern, one from the western, one from the central and two from the northern part of Europe. The Tampere University of Applied Sciences was tasked with coordinating all project activities. Finally, from all the potential funding instruments offered by the European Union, we chose Erasmus+ Strategic Partnerships for Higher Education. The consortium collaborated in preparing the funding application, although TAMK had the main responsibility for the writing process. The final version was sent to the EU at the beginning of March 2017 and a positive funding decision was obtained at the beginning of August 2017.

According to the application, the main aim of the project was to develop the Digi Nurse model for nursing education to enable patients' self-management of their chronic condition. The model was to contain concrete objectives for the learning skills needed in digital nursing and supporting patients' self-management, best teaching and training practices for learning to use digital tools, and the methods used in practice. In addition, the aim was to develop the concept of communication between the nurse and the patient, and evaluation criteria of digital skills in nursing and health promotion as the project work progressed.

The expectations and impact of the project results

A review of the curricula of the participating higher education institutions showed that their courses in nursing education included teaching in digital subjects. However, there was a lack of a coherent plan for the digital support of patients' self-management, and previous international collaboration on this topic had been limited. In addition, there was an increasing need for digital support to promote patients' self-management due to the aging of the population and an increase in lifestyle-related diseases such as type 2 diabetes and obesity. Therefore, the consortium set teaching and learning objectives to respond to the need of a coherent plan for teaching and learning skills necessary in providing patients with training on using digital solutions. The objectives were taken into account when deciding on the results expected from the project (Figure 1). The expectations were viewed from the perspective of nursing education and students' learning of digital and communication skills for supporting patients' self-management. In addition, the expectations of teachers and working life were included.

The DigiNurse Model is ready and it helps students to learn and apply their digital and communication skills to support self-management through online coaching and use of mobile health tools is in use in participating universities.

The students gain better abilities to exploit digital skills in supporting and coaching self-management of the patients suffering from chronic conditions.

Evaluation of the digital skills of nurses and student nurses shows improvement.

The digital health literacy among nursing students has increased.

< The teachers gain an effective model to organise the inclusion of building digital awareness and competence of their nursing students. >

The working life receives new nurses with up-to-date skills in digital supporting aids and methods of nursing tasks with self-management of patients.

The patients get better support for their self-management of their condition when the nurses can coach and support them better with available digital tools.

The European ICT companies get valuable feedback on their products.

At the end of the project the DigiNurse community has expanded beyond the participating institutions.

FIGURE 1. The expected project results during and after the project implementation

The expected project outcomes affected the determination of the impacts of the project during and after of its completion. The impacts included the expected results at the local, regional, national, and international level (Figure 2).

LOCAL
- DigiNurse model is tested and finalised
- Student nurses have successfully participated in the DigiNurse curriculum
- Testing and training staff are convinced of the added value of DigiNurse in a curriculum
- Awareness of preventive nursing interventions has increased

REGIONAL & NATIONAL
- DigiNurse Community expands to other institutions of higher education in the participating countries
- DigiNurse Model will be adjusted to be used in curricula for other health professionals

INTERNATIONAL
- DigiNurse community expands to other countries in Europe
- DigiNurse experience is shared among the international community
- Better connections with European ICT companies

FIGURE 2. The expected main impact of the project results during project and afterwards in Local, Regional, National and International levels.

The final project results can also be viewed under the concept of intellectual output (IO). Intellectual output summarizes the expected project results and impacts. Three intellectual outputs were determined for the DigiNurse project. The first output (IO1) was the DigiNurse Model. The second output (IO2) was called the DigiNurse Community, which would be established after the completion of the model. The aims of the community include organizing webinars and national training seminars to nursing students, teachers and stakeholders in the partner countries. The third intellectual output (IO3) consisted of the DigiNurse Guidelines. These guidelines would work as a guiding document enabling getting the most benefits out the DigiNurse Model. They include a compilation of the best practices of using the DigiNurse Model.

The implementation of the project was planned to consist of six transnational meetings. The project work was divided into six work packages, and providing each partner with the leading role of one of the work packages. As the responsible project coordinator, TAMK had two work packages, the Project Set-up and Management and Quality Assurance. The Belgian partners led the development of the DigiNurse Model, while the Slovenian and Portuguese partners were in charge of the piloting phases of the model. The Portuguese partners also played a leading role in the dissemination of the project results. Each partner organized multiplier events for the dissemination of the results. All work packages included activities carried out to promote goal achievement. The final evaluation of the transnational work will be completed at a management and quality assurance meeting held in December 2020.

> The implementation of the project was planned to consist of six transnational meetings.

Starting the implementation of the project

At a set-up meeting 2017 in Tampere, Finland, the project participants decided to explore the current literature of the components of the Dig-iNurse Model. These components included the best practices in digital teaching and learning, self-management support and empowerment of patients, coaching techniques, and models of technological practices.

As the project participants agreed that the DigiNurse Model was based on evidence-based knowledge, research literature was not only used in reviews but also throughout the whole model designing process. Evidence-based practice (EBP) provides nurses with a method to use critically appraised and scientifically proven evidence for delivering quality healthcare to a specific population (Majid et al., 2011; Elf et al., 2015) (More information in Chapter 4.1). The concepts of positive health and saluto-gesis (Mittelmark et al., 2017) which include an idea that individuals can make independent decisions on matters concerning their lives, formed part of the philosophical basis of the model. While ethics is intertwined with the whole structure of the model, extra attention was paid to Nurses' Ethical Code of Conduct (NMC, 2018) and General Data Protection Regulations (GDPR, More information in Chapter 5.8) (Regulation 2016/679/EU). Because the aim of the project was focused on teaching and learning digital support tools and methods for the self-management of patients with chronic conditions, the concept of chronic care was one of the basic elements in the model development. The transversal skills of the 21st century were not discussed at the start of project but were introduced later, as the development of the DigiNurse Model advanced.

The consortium decided to develop a questionnaire with 45 questions exploring student nurses' perceptions of their digital competence, skills of patients' self-management support and digital practices. The universities conducted the survey mainly in 2018, and the sample size was 857 respondents. The results of the survey showed that while students had experience in digital courses, they felt that they needed advance their theoretical as well as practical skills. The results were utilized in the development of the model.

The reviews produced valuable information about the components of the model and students' perceptions of their current digital knowledge level, and teaching and learning needs. This information was necessary when designing the structure of the model. The main features of the progress of the projects are introduced in Figure 3.
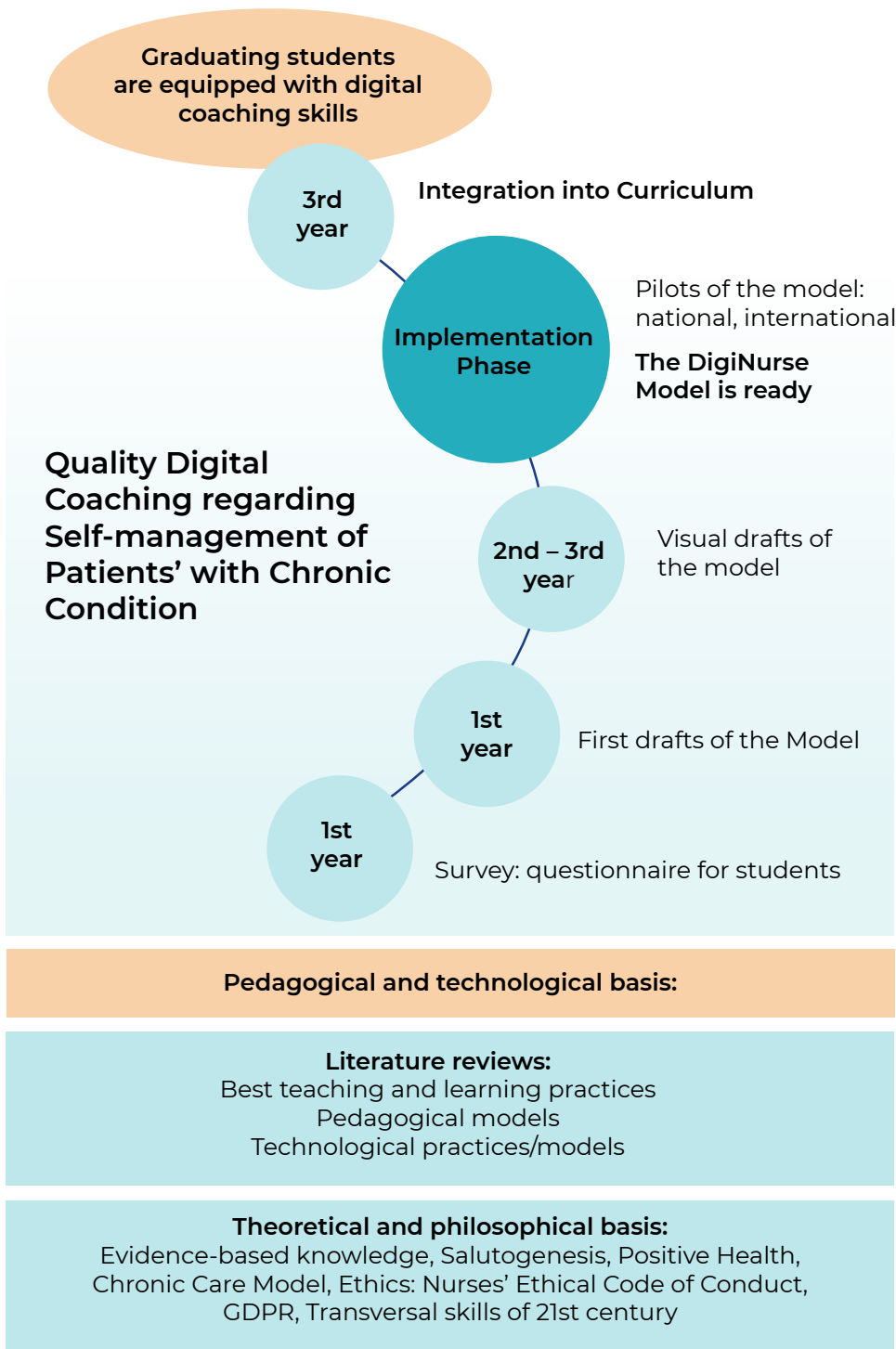
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Graduating students are equipped with digital coaching skills

3rd year

Integration into Curriculum

Implementation Phase

Pilots of the model: national, international

The DigiNurse Model is ready

Quality Digital Coaching regarding Self-management of Patients' with Chronic Condition

2nd – 3rd year

Visual drafts of the model

1st year

First drafts of the Model

1st year

Survey: questionnaire for students

Pedagogical and technological basis:

Literature reviews:
Best teaching and learning practices
Pedagogical models
Technological practices/models

Theoretical and philosophical basis:
Evidence-based knowledge, Salutogenesis, Positive Health, Chronic Care Model, Ethics: Nurses' Ethical Code of Conduct, GDPR, Transversal skills of 21st century

FIGURE 3. The main features of the progress of the project

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Conclusion

The DigiNurse project process started in November 2017. The set-up meeting showed that the project team had potential to achieve the project goals. In Chapter 5, the development and structure of the model are described in detail.

Recommended reading:

Mishra, O., & Mehta, R. (2016) What we educators get wrong about 21st century learning: Results of a survey. Journal of Digital Learning in Teacher Education vol 33(1), 6–9. https://doi.org/10.1080/21532974.2016.1242392

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Majid, S., Foo, S., Luyt, B., Zhang, X., Theng, Y-L., & Chang, Y-K. (2011). Adopting evidence-based practice in clinical decision making: Nurses' perceptions, knowledge and barriers. Journal of the Medical Library Association, 99(3):229–36. https://dx.doi.org/10.3163%2F1536-5050.99.3.010

Mittelmark, M., Sagy, S., Eriksson, M., Bauer, G., Pelican, J., Lindström, B., & Espnes G. (2017). The handbook of Salutogenesis. Comprehensive overview of Salutogenesis and its contribution to health promotion theory. Open Access. Retrieved from: https://www.springer.com/gp/book/9783319045993

NMC, Nursing & Midwifery Council. (2018) The Code. Professional standards of practice and behaviour for nurses, midwives and nursing associates. Retrieved from: https://www.nmc.org.uk/standards/code/

Regulation 2016/679/EU. Regulation of the European Parliament and of the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). Retrieved from: https://eur-lex.europa.eu/eli/reg/2016/679/oj