Health sciences educators' and educator candidates' digipedagogical competence: assessment after an online course

Competenze digitali di educatori e studenti educatori nel settore delle scienze sanitarie: valutazione a seguito di un corso online

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ABSTRACT The purpose of this paper is to describe the implementation of an online course, as well its development after implementation, and to focus on the health sciences educators' and educator candidates' assessments of their digipedagogical competence after the course. Semi-structured interviews to learners (n = 11) were used to collect data that were then analysed using inductive content analysis. The learners perceived that their ability to exploit digital applications increased and that they critically reflected upon their use of digital technology in teaching. The feedback from and presence of the tutors, as well as the collaborative activities with peer learners in the course, were generally regarded positively. Suggestions for improving the course were to limit the course content and to increase communality and other factors that support learners' learning and work. The lessons learned from this study can be applied in basic and continuing professional development of health sciences educators.

KEYWORDS Educator; Professional Competence; Online Learning; Pedagogy; Teacher Training; Digital Technology.

SOMMARIO L'obiettivo di questo contributo è quello di descrivere la realizzazione di un corso online e il suo sviluppo successivo, focalizzandosi sulla valutazione da parte dei partecipanti (educatori e studenti educatori nel settore delle scienze medico-sanitarie) rispetto alle loro competenze digitali. I dati raccolti attraverso delle interviste semi-strutturate (n=11), sono stati analizzati con un'analisi del contenuto di tipo induttiva. I partecipanti a seguito del corso hanno dichiarato che la loro capacità di usare applicazioni digitali è cresciuta, così come la loro capacità critica di riflettere sull'uso delle tecnologie nell'insegnamento. Il feedback dato dai tutor nel corso, così come le attività di tipo collaborativo con i pari, sono state giudicate positivamente. Tra i suggerimenti per migliorare le future edizioni del corso, i partecipanti hanno indicato la diminuzione del carico di contenuti e l'aumento della dimensione di comunità e di quei fattori che sono fondamentali per l'apprendimento, ma anche per il lavoro. Quanto appreso da quest'esperienza si può applicare alla formazione iniziale e continua degli educatori nel settore delle scienze medico-sanitarie.

PAROLE CHIAVE Educatore; Competenza Professionale; Apprendimento Online; Pedagogia; Formazione Docenti; Tecnologia Digitale.

1. INTRODUCTION

Digital competence is generally defined as the management and application of digital technology in everyday life (Ilomäki, Paavola, Lakkala, & Kantosalo, 2016). Among other things, digital technology refers to the Internet, software, devices, and digital content (Redecker, 2017). Educators' work combines the use of technology with comprehensive pedagogical competence (i.e., "digital pedagogy"; From, 2017). In this study, digital pedagogy is defined according to the European Framework for the Digital Competence of Educators (DigCompEdu). Digital competence is the competence an educator needs to carry out teaching and other professional activities through digital technology and to support a student's acquisition of digital competence (Redecker, 2017).

Digital competence is considered an important part of the daily work and multidimensional professional competence of any educator, and – among the others – of Social, Healthcare, and Rehabilitation (SHR) educators (Mikkonen et al., 2019a; Mikkonen et al., 2019b). In Finland, SHR educators teach SHR students in universities of applied sciences and vocational institutions[1]. A health sciences educator must have a professional qualification, a higher educational degree (e.g., a master's degree in health sciences), and three years' clinical experience. Additionally, vocational institutions require 60 ECTS in pedagogical studies (Decree on Qualification Requirements for Teaching Staff, 1998), whereas the universities of applied sciences have their own organizational regulations (Universities of Applied Sciences Act, 2014).

According to earlier studies, health sciences educator candidates are motivated to use and develop competence in information and communication technology (Autio, Saaranen, & Sormunen, 2018). Similarly, health sciences educators are motivated to develop their digital competence (Vauhkonen et al., 2020). According to Oprescu, McAllister, Duncan and Jones (2017), the most desired area of future development in teaching among nurse educators is information and communication technology skills. On the other hand, the increased use of digitalisation raises some worries, such as concerns about the loss of teacher-student interaction (Mikkonen et al., 2019b) and the possible challenges nursing education teachers face, when

[1] In this paper, the term "SHR educator" is equivalent to the term "health sciences educator".

supporting students in digital environments (Männistö et al., 2019).

However, high digital competence is needed; for example, in using digital materials (Ramírez-Montoya, Mena, & Rodríguez-Arroyo, 2017) or creating digital learning environments (Amhag, Hellström, & Stigmar, 2019). The key is to ensure that current and future health educators have sufficient digipedagogical skills. Consequently, research related to this theme is needed due to its relevance and topicality.

Starting from these needs and considerations, we designed and ran an online course aimed at developing the digital competence of health sciences educators. With its content and methods, the course allowed participants to learn about digital technologies and digital pedagogy. Additionally, it challenged participants to search for the most suitable knowledge for their own needs, as well as offered the possibility to get familiar with different applications and digital contents at individual level. The self-paced, web-based learning environment allowed flexible studies and effective learning.

In this paper, we describe this online course and provide the results of the assessment carried out by course participants. The main lessons learned can be applied in the context of basic and continuing professional development of health educators.

2. THE DIGIPEDAGOGICAL ONLINE COURSE

An online course, "The Basics of Digital Pedagogics for Health Sciences, Social Service and Rehabilitation Education" (2 ECTS), was created as a part of the Finnish TerOpe project, which defined national competence requirements for health sciences educators and developed continuous education for digital competence. The TerOpe project was conducted during 2017-2019 and was funded by the Ministry of Education and Culture in Finland. The Department of Nursing Science of the University of Eastern Finland took the main responsibility for the development of the course in cooperation with the Department of Nursing Science of the University of Turku.

The content of the course follows the DigCompEdu framework (Redecker, 2017). The framework includes 6 modules divided into 22 competences, which widely describe the professional activities of educators, the digital pedagogical content of teaching and learning, and the enhancement of digital competence among learners. This model provides a foundation and is suitable for the development of digital competence for educators in general. Based on the framework, it is possible to create various digital learning entities, which then take into account the content needs and requirements of educators in different fields together with digital competence. The six modules are as follows:

1) professional engagement,
2) digital resources,
3) teaching and learning,
4) assessment,
5) empowering learners, and
6) supporting the learner's digital competence.

The online course modules are named similarly (see Table 1), and include familiarisation with contents, such as how to use digital technologies in interaction, collaboration, and professional development; how to produce and modify meaningful and interesting content in a digital learning environment, as well as share and manage it; how to identify challenges and benefits to learning, teaching, and assessment brought about by a digital environment; ways digital approaches can help educators support learners' inclusion; and how to identify aspects concerning information and media literacy. Table 1 provides an overview of the learning outcomes and activities for each module.

MODULE	LEARNING OUTCOMES	ACTIVITIES
Module 1: Professional engagement	Ability to develop digital skills in interaction, cooperation, reflection, and continuous professional development Ability to use digital devices to interact and collaborate	Reflection task, peer task
Module 2: Digital resources	Ability to explain the basic principles of copyright and find out more information about it Ability to explain the basics of selecting, creating, sharing, and managing digital material	Discussion, quiz
Module 3: Teaching and learning	Ability to understand ways digital technology can be used in teaching and guidance Ability to apply digital technology individually and collectively to support learning	Top 5 list, quiz
Module 4: Assessment	Ability to understand ways digital technology can be used in evaluation	Reflection task, mind map, peer review
Module 5: Empowering learners	Ability to understand the principles of accessibility and inclusion in e-learning and the ability to plan and implement teaching that supports accessibility and inclusion Ability to understand the principles of differentiating and individualizing teaching Know what active engagement means and ways it can be used to increase activity and engagement in an online environment	Creating a quiz, completing another student's assignment, peer review
Module 6: Supporting the learner's digital competence	Know what is meant by information and media literacy skills and possess the ability to support the learner in learning these skills Ability to develop one's digital problem-solving skills and guide learners in solving problems using digital technology	Quiz

Table 1. Learning objectives and activities of the online course.

The six-week course was piloted in February-March 2019 using Moodle and Microsoft Teams online environments. Additionally, materials and exercises based on the use of other applications were included (e.g. Padlet, Prezi, Sway, Canva, PowerPoint, and H5P). Before the course began, learners received a letter with information about the course. The modules were not scheduled: students were allowed to complete their studies at their own pace. Completing the modules in order from 1 to 6 was recommended, but learners had the chance to complete them in the order of their choice. Each module came with a set of instructions. The learning material was presented in multiple ways. For example, text, articles, links, pictures, and videos were used. Every module included one to three assignments that were designed to give the learner an opportunity to practice the use of different digital applications. Among other skills, students learned how to create a questionnaire or a "mind map" using digital applications. Some assignments required self-reflection, commenting on other learners' assignments, or working in pairs. Assessment methods included feedback from tutors or peer learners, along with automatic assessment. In addition, the modules contained additional material students could use according to their interest. Successful completion of the course required participation in discussions and approved assignments.

According to previous research, the presence of tutors (Hodges & Forrest Govan, 2012; Stone & Springer, 2019) and cooperation with peer students (Stone & Springer, 2019) are important features of online courses. This course had four tutors as supervisors, and interaction was maintained and encouraged through weekly chats hosted by tutors, as well as paired assignments, guided conversations, and open discussion areas.

3. PURPOSE, AIM, AND RESEARCH QUESTIONS

The purpose of the paper is to describe the implementation of the online course and consequently the health sciences educators' and educator candidates' assessments of their digipedagogical competence after the course. The aim is to provide information that could be used in the development of future online courses and, in a broader sense, in the development of health sciences educator candidate training and health sciences educator continuing professional development.

The research questions are as follows:

1) How did the health sciences educators and educator candidates assess their digipedagogical competence after the online course?
2) How did the health sciences educators and educator candidates assess the implementation of the course?
3) What suggestions did the health sciences educators and educator candidates give for further development of the course?

4. DATA AND METHODS

4.1. *Target group and data collection*

The target group of the course consisted of students in the online course (N = 54), who were health educator candidates (n = 29) and health sciences educators (n = 25) from nine organizations. The learners were invited to participate in the study during the course and by email. Eleven learners enrolled in the semi-structured interviews conducted in April-May 2019 and filled in an electronic background information form (email address, organization, field of study, teaching experience, professional/student background, and age). Interviewing was considered the most appropriate research method, because the target group was relatively small and there was a desire to study the learners' experiences, as well as to obtain in-depth information on the topic along the lines of the research questions (Polit & Beck, 2018). The learners were either divided into small groups for interviews or interviewed individually, because scheduling a group interview was not suitable for all participants. The interviews were conducted remotely and recorded with a separate recorder. The interviews took 4h 30min overall, and 53 pages of transcripts were gathered (12-point Times New Roman and single line spacing). The framework for the interviews was based on previous research data and finalized with three experts from the TerOpe project. It was pre-tested with three of the course's tutors and further developed by clarifying the questions. The material from the pre-test is not included in the research material.

The themes of the interview were derived from the research questions and were as follows:

1) The learners' digipedagogical competence (e.g., What level of digipedagogical competence did you have before the course? How would you assess your digipedagogical competence after the course? What kind of digipedagogical knowledge and skills do you have after the online course?)
2) The evaluation of the course (e.g., How would you assess the online course's technical function, interaction, and content?)
3) Suggestions for future courses (What things would you change or improve in the online course based on your experience?).

4.2. *Data analysis*

The data were analysed using inductive content analysis (Elo & Kyngäs, 2008; Polit & Beck, 2018). First, the interviews were transcribed. The interviews were then read several times while searching for themes

related to the research questions. Sentences describing the issues relevant to the research questions were chosen as the units of analysis (Polit & Beck, 2018). The sentences were simplified, grouped, and labelled to form subcategories with the same content, after which the grouping was repeated. Next, the generic and main categories describing the themes of the subcategories were created. The answers to the research questions were obtained by systematic progression.

5. RESULTS

Four of the learners were educator candidates and six worked as educators. One learner was both an educator candidate and an educator. Educator candidates studied at two universities, and educators worked in five different organizations. The educators' fields of study were either nursing or health sciences, and the organization was either a university hospital, a university, a university of applied sciences, or a vocational school. Educators' work experience ranged from 4 months to 11 years. The educator candidates were aged 27–43, and the educators were 31–52 years old. Ten of the learners completed the course in its entirety and one completed part of the course.

Learners self-described their initial level of digipedagogical competence as varying from poor to good. Most of the learners had used various digital applications such as WhatsApp, Kahoot, or Padlet in their work or studies. In addition, the Moodle learning platform and its activities were familiar to many learners. Learners described having some experience with creating digital learning materials and with the related copyright issues that can arise. They recognized the need for development, especially developing skills pertinent to using digitalization to support student learning.

5.1. *Learners' assessments of their digipedagogical competence after the course*

From the content analysis, it was detected after completing the course learners assessed that their abilities to use digital applications had increased, their understanding of the challenges of using digital technology in teaching had increased, and the need for the development of digipedagogical competence had been identified (Table 2).

GENERIC CATEGORY	SUBCATEGORY
Capabilities for utilizing digital applications increased	• Proficiency on the applications increased. • Confidence to use applications increased. • Pedagogical perspective for utilizing applications widened. • Suitable teaching situations for using applications were found.
Understanding of the challenges of using digital technology in education had increased	• The reflection on the sufficiency of teachers' competence and time resources increased. • The understanding of technical and financial challenges increased.
The development needs of digipedagogical competence were recognized	• Confidence to use digital applications was needed. • More knowledge on how to develop online courses was needed. • More information on digipedagogical teaching practices was needed.

Table 2. Learners' assessments of their digipedagogical competencies after the online course.

Learners assessed that their capabilities to use digital applications had increased after the course. Learners' proficiency and confidence to use applications increased.

"*I had never even heard of things like Popplet and Monkey and things like that… So this course taught me what exists and what can be used*" (Interviewee 1).

"*I learned a lot. I was able to try all sorts of things [such as] carry out a survey and try mind map tools*" (Interviewee 5).

The pedagogical perspective on the use of applications in teaching was strengthened. According to the learners, the use of applications should not become the main aim of teaching, but should rather promote the aim and purpose of learning. The pedagogical choices educators make are relevant to their students' motivation and learning. In addition, students should be given alternative tools with which to learn because individuals learn differently and some might not use digital devices.

"*And specifically… what is the goal and what do you want students to learn? That should be a priority, not the application or method"* (Interviewee 9).

Learners said that they would use applications in teaching (e.g., to liven up classes as well as activate and motivate students). The applications would act as assessment tools and communication channels with students. One learner described being able to guide students in the use of applications.

"So, for example, Flinga makes it possible to ask questions and make comments anonymously during the training" (Interviewee 6).

Learners assessed that their understanding of the challenges of using digital technology in education had increased after the course. The course encouraged them to reflect on the resources that the educational use of technology requires. An educator's digipedagogical competence in relation to the time required for technology use, the possibility of technical problems, the cost of digital devices, and information security issues were identified as possible obstacles to the full use of digital tools in teaching.

"*Mastering it takes time. So, it brings up the resource question, how easily you can master technology. First, you must know how to use it yourself to be able to produce any teaching materials, and you need to know what is suited for what and what kinds of things suit each student*" (Interviewee 7).

"*However, these can often be related to some kind of technical problems… [and] so [to] how easy it is to be too scared to use them*" (Interviewee 3).

Learners identified development needs in their digipedagogical competence after their studies.
Development needs were related to the safe use of applications, such as practising how to use them, maintaining skills, and applying them to teaching. Many learners expressed a need for more skills in developing online course units: building a learning platform, pedagogical planning, and implementation as a meaningful, functional unit for the student. In addition, learners felt they needed additional information on digipedagogical teaching practices, such as experiences, guidelines, and research data that summarize key issues.

"*For example, Kahoot used in this situation best supports this type of learner; it should not be used if the person in question does not like to study this way… so [there are] guidelines like this*" (Interviewee 9).

5.2. *Learners' assessments of the course*

Learners assessed that the usability and content of the course had both strengths and weaknesses and that the actions of the tutors and learners in the course were positive (Table 3).

MAIN CATEGORY	GENERIC CATEGORY	SUBCATEGORY
THE USABILITY OF THE ONLINE COURSE HAD STRENGTHS AND WEAKNESSES	**The structure of the course promoted studying**	• Six modules structured studying. • Studying at learners' own pace increased the flexibility of studying. • The logically advancing course was well structured and guided the studying. • The visual design made the use pleasant.
	The functionality of learning platforms varied technically and in terms of usability	• There were no technical problems with Moodle. • Microsoft Teams was harder to use. • Minor technical difficulties occurred during the course. • Different learning platforms increased learning but challenged studying.
THE CONTENTS OF THE ONLINE COURSE HAD STRENGTHS AND WEAKNESSES	**The learning material was comprehensive but too abundant or difficult to read**	• Comprehensive and versatile learning material provided plenty of information. • An excessive amount of learning material reduced the enthusiasm for studying. • The graphics in the learning material were at times difficult to read.
	The other course content was suitable for the course	• Previous information made it easier to start studying. • The course objectives were appropriate. • Assignments developed competence. • Different evaluation methods were useful. • The overall description of the course facilitated the planning of studying.
	The workload of the course was taxing	• The study time was at the upper limits in relation to the number of credits. • The heavy workload forced prioritization of studying.
THE ACTIONS OF THE TUTORS AND PEER LEARNERS WERE POSITIVE	**The work of the tutors was commendable**	• The feedback was positive and constructive. • The response was rapid. • Presence and availability were appreciated.
	Collaboration between learners increased knowledge but did not promote natural interaction	• Conversations between learners increased knowledge. • Pair work increased knowledge. • Commenting on the discussions did not add to the natural interaction.

Table 3. Learners' assessments of the implementation of the online course.

Learners assessed that the structure of the course promoted learning. The course was divided into six modules, which helped to structure studying. Studying at learners' own pace increased the flexibility of studying. The logically advancing course was well structured and guided the learning process. A clear visual design facilitated navigation during the course and made studying pleasant.

"I liked that they were modules and that they were specifically divided… It made it easier to do and plan my own work; like, I'll do this then and that..." (Interviewee 1).

The functionality of the learning platforms varied technically and in terms of usability. Most learners were familiar with Moodle and found it to be technically trouble-free and easy to use. In contrast, studying in Microsoft Teams was perceived as more challenging due to, among other things, unclear discussions. Some learners experienced minor technical problems during the course that hindered their studying.

"I had some issues with accessing [Microsoft] Teams in the beginning, but once I got the invitation, then I was able to join that too" (Interviewee 5).

"Everything worked fine, for me at least; I didn't have to fiddle with technology this time" (Interviewee 9).

Studying on different platforms was recognized as one way to develop digital skills, but at the same time, studying in various environments was felt challenging. In addition, students found it difficult to keep track of their progress in the class, which caused uncertainty about the completion of the course.

"Of course, the idea was to introduce a lot of different ways to learn and teach digitally, so the assignments were done in different environments, but on the other hand, it felt pretty exhausting; it was a lot of learning, especially for me, when there were so many new things" (Interviewee 10).

Overall, almost all learners said the learning material was comprehensive and versatile. On the other hand, almost all learners found there was too much learning material, which reduced their eagerness to study. The readability of the learning material also caused frustration for a few learners.

"There was a lot of material on offer there... It felt partly overwhelming to have so much material there" (Interviewee 8).

The other contents of the course – prior knowledge, objectives, assignments, assessment methods, and an assignment-assessment summary table – were perceived as suitable for the course. Prior knowledge facilitated the start of studies, and the learners felt that the study objectives guided the lessons and were suitable for the level of the course. Assignments challenged the learners to reflect, and different assessment methods were found to be useful. A summary table of assignments and assessments helped to outline the study entity.

"Many of the assignments were sort of really motivating, and I especially enjoyed playing with those mind maps and if things became useful for myself" (Interviewee 6).

"*I thought the tests were pretty nice here so that you could try them again, and they weren't made to be too hard*" (Interviewee 4).

In terms of workload, the course was found to be taxing. The time taken to complete the lessons in relation to the number of credits was at the upper limits. Because the course included optional materials and assignments, the heavy workload forced learners to prioritize their time to focus on the most significant learning areas.
The actions of the tutors and peer learners in the course were regarded as positive. The actions of tutors during the course were considered commendable. According to the majority of learners, the tutors responded quickly to the problems and the feedback on the assignments was constructive, positive, and quick, which facilitated learning. The tutors were present and available during the course, which created a positive atmosphere for studying.

"*The tutors responded very quickly if there was a problem, and the assessments came in time*" (Interviewee 5).

Collaboration between learners was perceived to increase knowledge, but not natural interaction. The discussions provided information and new ideas and stimulated reflection. On the other hand, the learners felt discussions and comments were tasks that had to be performed, which did not necessarily promote natural interaction.

"*But I don't know how good the interaction in those [discussion areas] necessarily is, because I think that those conversations, where you have to at least say something, make me wonder how many will read them in the future to find out if someone replies to something****"*** (Interviewee 2).

5.3. *Learners' suggestions for developing the course*

The learners suggested narrowing down the content of the course, by making the amount of learning materials more reasonable and their visual design more soothing to the eye, providing material that summarizes the core issues, and carefully considering the number of applications to be used. Learners suggested adding activities that promote community feeling, such as getting to know each other and cooperating with peer learners. In addition, the learners proposed adding methods that support studying and working life, such as tools for monitoring the progress of studies, module-specific goals and time limits, and assignments that can be applied to educators' work.

6. DISCUSSION

6.1. *Review of the results*

The learners' capabilities – their proficiency, pedagogical perspective, and confidence to utilize digital applications – increased after the course. In addition, suitable teaching situations for using applications were recognized. These are important outcomes because, according to Amhag et al. (2019), even though teachers use digital tools for tasks such as administrative, communication, and teaching work, they did not use tools primarily for pedagogical purposes to facilitate learning, and they need pedagogical support in creating digital teaching. Based on the results of this study, it can be concluded that by strengthening learners' digipedagogical competence, the use of applications in teaching could increase, and in particular, the idea to promote students learning via applications could strengthen.
According to the study, learners' understanding of the challenges of using technology in teaching increased.

Inadequacy of the educator's digital competence, limited time, technical problems, and the cost of digital devices, were brought up by learners. Similarly, previous research has highlighted the challenges in technology use (Ghavifekr, Kunjappan, Ramasamy, & Anthony, 2016; Sormunen et al., 2020). Even though this study did not specifically address the advantages of using technology in teaching, they have been explored previously (Scott, Baur, & Barrett, 2017). For instance, digital learning can reduce the resources teachers and students require and give students flexibility (Sormunen et al., 2020; Sormunen, Heikkilä, Salminen, Vauhkonen, & Saaranen, 2021).

The learners identified the need for digipedagogical development related to the confident use of applications, creation of online course units, and digipedagogical teaching practices. These findings are closely aligned with those of Amhag et al. (2019). The constant development of technology requires updating and maintaining skills, and it is important that educators are given the opportunity to do so. For example, continuing education that meets needs and includes collegial interaction (Nokelainen et al., 2019) or participation in activities of a digital collegial network (Mikkonen et al., 2019a), are possible ways to develop competence. By providing time and training, as well as support and funding for the use of technology and by creating collegial networks, both the development needs identified by learners and the perceived challenges to the use of technology in education, can be addressed.

In the present study, learners assessed that the usability and content of the course had both strengths and weaknesses. The strengths are related to the structure of the course, which promoted studying, and its contents, which were appropriate. Weaknesses, in turn, related to the excessive and partly visually challenging learning material, the workload, and variability in the usability and technical functionality of the learning platforms. According to Sinclair et al. (2017), in developing online courses, the learner's working memory should not be overloaded due to too much information. For example, to maximize learners' comfort, various colours, fonts, and headings should illustrate essential aspects of the content. In addition, designing the course in such a way that it can be realistically implemented in relation to the given time and workload (Hodges & Forrest Govan, 2012), is an important factor to consider. In accordance with the learners' suggestions, the further development of the course should consider narrowing down the course content, by modifying and clarifying the study material, carefully choosing the learning platforms, and considering the correspondence of the workload to the available time.

The learners valued the tutors' work, and thus this study supports previous literature about the important role of instructors in a course (Hodges & Forrest Govan, 2012; Stone & Springer, 2019). Collaboration between learners increased knowledge, which is something already pointed out by previous studies (Ramírez-Montoya et al., 2017). Interestingly, learners' collaboration did not increase natural interaction between each other, even though the course was designed to allow communication using several approaches. Stone and Springer (2019) raised a similar issue in their study. According to Lee and Martin (2017), external factors, such as study credits, motivate online discussion. This study also showed that external guidance does not inherently increase natural interaction. However, learners desired a more communal feeling in the course, which highlights the importance of course design that facilitates learners' connection and interaction with their teacher and other students (Scott, Baur, & Barrett, 2017; Stone & Springer, 2019).

6.2. *Ethical aspects and reliability of the research*

The research was carried out in accordance with responsible research conduct (Finnish Advisory Board on Research Integrity, 2012) and the ethical principles of research involving human participants (2019). A research permit for educator candidates was obtained from their educational organizations, while no separate research permit was applied for the participation of educators, because they took part in the course out of

their own interest. The research bulletin and privacy statement were distributed to learners at the beginning of the course and again when they were invited to the interview. Participation in the study was voluntary, and learners provided informed consent for participating in the study and for the publication of the results. The personal data register created in the study consisted of direct and indirect personal data collected as background data, and the data were processed in accordance with the General Data Protection Regulation (Regulation [EU] 2016/679 of the European Parliament and of the Council). The research data were password-protected, and the material was archived with indirect identifiers. Audio files were destroyed after transcription. Individuals cannot be identified in the reported study.

In accordance with Lincoln and Cuba (1985), the reliability of this study was examined through credibility, truthfulness, confirmability, and portability. The research phenomenon was studied in depth, as the same researcher collected, analysed, and reported the data, spending a sufficiently long time studying the phenomenon. In addition, experienced researchers in the research team evaluated the relevance of the categories used in the analysis. In this way, the credibility and reliability of the results were increased. Confirmability was increased by accurately describing the steps of the study and the analytical process. Additionally, original citations were presented to examine the objectivity of the results. Regarding transferability, the research context and the learners' background information are described so that the applicability of the results to other contexts can be assessed.

7. CONCLUSION

The course work increased health sciences educators' and educator candidates' abilities to use digital applications, as did critical reflection on using digital technology in teaching. In addition, the development needs were identified after the course. The course appears to be a suitable way to develop digipedagogical competence, and it is justified to continue offering it in the education of students in SHR fields. To address the perceived challenges of using digital technology and to meet development needs, educators and educator candidates need certain resources – training, networks, and time to develop their skills – as well as funding for devices and technical support for the use of technology.

The course's usability and content had strengths and weaknesses. The actions of the tutors and peer learners were regarded as positive. To improve the usability of the online course, the number of learning platforms can be limited, better opportunities to monitor one's studies can be offered, and technical challenges can be solved. In content development, the amount of learning material can be limited and the workload reduced so that the lessons do not overburden learners. To promote student interaction, areas that enable communality can be added.

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