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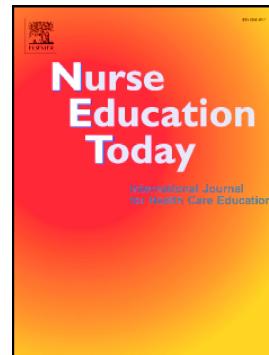
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Social and health care educators' perceptions of competence in digital pedagogy: A qualitative descriptive study



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Title: SOCIAL AND HEALTH CARE EDUCATORS' PERCEPTIONS OF COMPETENCE IN DIGITAL PEDAGOGY: A qualitative descriptive study

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Ethical approval: This study was conducted in accordance with the ethical standards regarding research involving human subjects (Declaration of Helsinki 2013; Stang 2015). The ethics committee of the University of Jyväskylä granted approval (12/2017) for the study. Permission to recruit the participants was applied for in relation to each UAS. Written informed consent was obtained from each participant before the interviews. To protect the participants anonymity, all direct and indirect personal data was removed from the transcripts, nor were these reported on. The participants were also able to withdraw from the study at any point without giving a reason. The data will be stored for ten years in archive folders, in line with GDPR regulations (2016) and the Personal Data Act (523/1999).

Acknowledgements: This study is part of the TerOpe project funded by the Ministry of Education and Culture in Finland. We would like to acknowledge the Ministry of Education and Culture for providing us with this opportunity to further research in the area of educators' competence in digital pedagogy. We would also like to express our appreciation to all educators who participated in this study. Finally, we would like to acknowledge the Lingsoft Group (<https://www.lingsoft.fi>) for improving the language and helping us to better communicate our findings to readers.

Keywords: digital pedagogy, competence, digital technology, education, educator, social and healthcare

Background: Digitalisation has made digital competence a necessity for those working in social and healthcare. A high degree of competence in digital pedagogy is required of educators to meet the challenge of educating future professionals who are themselves highly digitally competent.

Objectives: The aim of this study was to describe the perceptions of competence in digital pedagogy that educators in social and healthcare have.

Design: A qualitative descriptive study.

Participants: The participants were Finnish-speaking social and healthcare educators ($n=37$) working at six Finnish universities of applied sciences (UAS).

Methods: Group interviews ($n=12$) were conducted during spring 2018. Each group consisted of 2–5 educators, with a total of 37 educators. The data was analysed using an inductive content analysis.

Results: According to the interviewed educators, competence in digital pedagogy involved pedagogical, digital, and ethical skills and awareness. The educators were aware of the possibilities afforded by digital technology and had a positive view on how the technology could be utilised in education. However, the educators were concerned that technology might solely be utilised for the sake of digitalisation instead of being pedagogically preferable.

Conclusions: In the future, the results of this study can be utilised while developing an instrument to evaluate the level of competence in digital pedagogy. Examining the perceptions of the educators will allow us to better understand the phenomena from the educators' point of view.

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1. INTRODUCTION

Digitalisation has had a major impact on working life and digital competence is a necessity for everyone in modern society (van Laar et al., 2017), including those working in social and healthcare (Zlatanovic et al., 2017). In order to meet the demands of digitalisation, education must be continuously reformed and developed (Gonen et al., 2016).

The utilisation of digital technology, the digitalisation of learning environments and the increasing prevalence of distance learning require educators to be competent in digital pedagogy (From, 2017). There are many advantages to the digitalisation of learning (McDonald et al., 2018, Reis et al., 2018, Webb et al., 2017, Gonen et al., 2016). Educators who are competent in digital pedagogy are able to integrate digital technology into education and are able to teach the essential digital skills students need in working life (McDonald et al., 2018, From, 2017, Redecker, 2017, WHO, 2016).

It has been acknowledged, however, that educators lack competency in digital pedagogy (Webb et al. 2017). There is abundant research on the overall competence of social and healthcare educators (Mikkonen et al., 2018, Zlatanovic et al., 2017, Salminen et al., 2013), but there has been insufficient focus on their competence in digital pedagogy. Previous research has mainly focused on digital resources rather than on the competence of the educators in digital pedagogy. Therefore, this study focuses on describing the educators' perceptions of competence in digital pedagogy. Examining the perceptions of the educators allows us to better understand the phenomena from the educators' point of view. This knowledge can be utilised in developing an instrument for measuring competence levels in digital pedagogy.

1.1. Background

Competence consists of knowledge, skills, attitudes, and values (Mikkonen et al., 2018, From, 2017, Salminen et al., 2013, Le Deist and Winterton, 2005). An

educator needs knowledge of the (professional) field in question, as well as ethics and pedagogical approaches and solutions. A healthcare educator's skill set involves pedagogical competence, clinical competence, problem-solving, leadership, research competence, evaluation skills, and technological proficiency. Moreover, an educator required good communication skills and needs to be able to motivate students (Mikkonen et al., 2018, Zlatanovic et al., 2017, WHO, 2016). Although an educator's attitudes and values do not necessarily directly influence their teaching, they may affect it to some extent (Salminen et al., 2013).

Digital competence refers to the ways in which an educator is able to use digital technology and digital environments. Digital technology, here, refers to digital appliances and software, for example, computers, mobile phones, and social media applications (From, 2017). Competence in digital pedagogy combines digital and pedagogical competence and is a requisite for the meaningful utilisation of digital technology in teaching (Cowling and Birt, 2018, From, 2017).

In previous research, digital competence and competence in digital pedagogy have been defined (McDonald et al., 2018, Reis et al., 2018, Redecker, 2017, van Laar et al., 2017, Webb et al., 2017). Redecker (2017) categorises an educator's digital competence into six areas, which are: 1) professional engagement, 2) digital resources, 3) teaching and learning, 4) assessment, 5) empowering learners, and 6) facilitating the digital competence of the learners. Professional engagement means that an educator has the ability to use digital technology in communication (McDonald et al., 2018, Redecker, 2017, van Laar et al., 2017), collaboration and professional development (Redecker, 2017). A digitally competent educator has the ability to select, create, modify, manage, protect and share different digital resources, such as digital content or data used in teaching (McDonald et al., 2018, Reis et al., 2018, Redecker, 2017, van Laar et al., 2017). Additionally, digitally competent educators are able to manage the use of technology in teaching, learning and can also assess their students' learning using digital technology (Redecker, 2017, van Laar et al., 2017, Webb et al., 2017). A digitally competent educator can empower learners by utilising digital technologies to enhance their inclusion, as well as to improve the personalisation of the learning and to encourage the active engagement of the learners (Redecker, 2017, van Laar et al., 2017). In addition, a

digitally competent educator is able to facilitate the learners' digital competence and should be able to guide them to use digital technology responsibly and creatively (Redecker, 2017).

Previous research on the competence in digital pedagogy of social and healthcare educators is scarce. The utilisation of digital technology in learning settings has, however, been acknowledged to have many advantages and educators should, therefore, utilise digital technology in versatile and open-minded ways (McDonald et al., 2018, Reis et al., 2018, Webb et al., 2017, Gonen et al., 2016). In relation to social and healthcare students, previous research has shown that students see themselves as being less proficient in searching for information and the assessment of sources and hence educators' skills in these areas are essential to support and guide students (Gonen et al., 2016).

The prerequisites for social and healthcare educators are not clearly defined in all countries (European Commission, 2018, Salminen et al. 2010). In most European countries, however, a university degree is required (Jackson et al. 2009). In Finland, educators in this field are required to have a professional degree, as well as 3–5 years' work experience in the field in question, and a higher educational degree (i.e. a master's and/or doctoral degree) (University of Applied Science Act and its later amendments A1129/2014). Before the year 2015, it was also required to have taken a course in pedagogical studies (60 ECTS), but this is no longer a requirement (University of Applied Science Act and its later amendments A1129/2014). However, it is recommended that healthcare educators have taken pedagogical studies.

In this study, social and healthcare educators are defined as working full- or part-time as educators at a university of applied sciences (UAS) in Finland and as having a relevant qualification in social and/or healthcare.

2. RESEARCH AIM

The main aim of this study was to describe social and healthcare educators' perceptions of competence in digital pedagogy, with the ultimate goal of utilising this

knowledge while developing an instrument to evaluate the level of the educators' digipedagogical competence. The primary research question was:

RQ: How do social and healthcare educators perceive competence in digital pedagogy?

3. METHODS

3.1. Research design

A phenomenographic philosophical approach was employed, aiming to achieve a descriptive study design (Marton 1986). An inductive approach was applied due to the paucity of research data on the topic (Elo and Kyngäs, 2008).

3.2. Recruitment and data collection

Nine UASs were contacted and asked to invite social and healthcare educators to participate in this study. Six UASs responded and the educators were recruited with the assistance of the UAS contact persons. The inclusion criteria for participation were: 1) employment in a UAS as a part- or full-time social and healthcare educator, 2) Finnish-speaking, and 3) consenting to participate. The educators received an invitation letter providing information about the study. The same information was also given verbally before the interviews. Written, informed consent was collected prior to the interviews.

Twelve semi-structured, face-to-face focus group interviews of 37 social and healthcare educators were conducted during spring 2018 at six UASs. Each group consisted of 2–5 educators and 1–2 interviewers. In total, 7 interviewers conducted the multi-professional interviews. Semi-structured interviews were chosen as the preferred interview method, and themes were formed in accordance with a theoretical framework derived from a single systematic review (Mikkonen et al., 2018) defining educator competence in the health sciences.

The overall focus of the interviews was on the social and healthcare educators' competence, which was addressed through five themes in the interviews: 1) educator competence, 2) recent changes in requirements concerning educator

competence, 3) future educator competence, 4) continuing education and professional development for educators, and 5) the educators' use of digital technology. In addition, each participant completed a background information questionnaire. The interviews took 55–100 minutes and were audio-recorded and transcribed verbatim.

3.3. Data analysis

The data was analysed in an inductive content analysis (Graneheim and Lundman, 2004, Sjostrom and Dahlgren, 2002). Only one of the five themes in the interviews was directly linked to the educators' competence in digital pedagogy, but digitalisation also came up during the discussion of other themes in the interviews. Therefore, the entire interview data was analysed instead of choosing only the parts that focused on the fifth theme: the educator's use of digital technology.

Two researchers searched for every mention of digitalisation in the overall interview data. The educators were assigned codes, and all identity information was removed in order to protect the participant anonymity. Next, the data analysis was initiated by a single researcher. During the process of analysis, the results were discussed by the research team to find consensus.

The data was entered into the NVivo 11 computer program and the interviewees' original statements were given NVivo codes. The codes were compared for similarities and differences, resulting in the first categories. Next, the original statements were refined. This was done carefully to preserve the original thoughts of the interviewees. The analysis proceeded by finding similarities and differences between the codes in one larger category and then creating more accurate subcategories. After this process, there were a total of 51 codes, 9 subcategories and 3 main categories.

The analysis continued by creating new categories and modifying the already existing ones. An example of the analysis process is described below (Table 1). The

statements have been translated from their original language and made slightly easier to read than a verbatim word for word translation.

Table 1. Example of the analysis process.

3.4. Ethical considerations

This study was conducted in accordance with the ethical standards regarding research involving human subjects (Declaration of Helsinki 2013; Stang 2015) and the ethics committee of the University of Jyväskylä granted approval (12/2017) for the study. Permission to recruit the participants was applied for in relation to each UAS. Written informed consent was obtained from each participant before the interview. To protect the participants' anonymity, all direct and indirect personal data was removed from the transcripts, nor were these reported on. The participants were also able to withdraw from the study at any point without giving a reason. The data will be stored for ten years in archive folders, in line with GDPR regulations (2016) and the Personal Data Act (523/1999).

4. RESULTS

4.1. Participants

In total, 37 educators participated in this study. The educators came from six UASs from different regions in Finland. The majority (81%) of the educators had a master's degree and taught on a nursing degree programme (54%) (Table 2).

Table 2. Demographic characteristics of the educators.

4.2. Social and healthcare educators' competence in digital pedagogy

According to the educators' perceptions, competence in digital pedagogy of social and healthcare educators consisted of three main categories: 1) pedagogical competence, 2) digital competence, and 3) ethical competence. (Figure 1.)

Figure 1. Social and healthcare educators' perceptions of competence in digital pedagogy according to the educators themselves.

Pedagogical competence

According to the educators, pedagogical competence consisted of three sub-categories: 1) subject knowledge, 2) expertise in teaching methods and 3) expertise in working life skills. The following sections explain these in more detail and include some illustrative examples from the interviews.

Subject knowledge

According to the educators, it is essential to have knowledge and experience of the profession being taught, i.e. working as a social and healthcare educator requires one to be educated in the relevant profession. This was explained by one of the interviewees, who stated:

“If your subject knowledge is poor, you can’t accomplish anything with pedagogy or technology.” Group 1

Expertise in teaching methods

Expertise in teaching methods was important to the educators. They were worried that technology might be utilised merely for the sake of digitalisation and not because it would be a better solution pedagogically. The educators also considered that it is essential to know when to use technology to help students learn. As one of the interviewees noted:

“An educator needs to have digital competence, but above all—we need to know how to utilise digital technology in teaching.” Group 8

Expertise in working life skills

According to the interviewees, working life skills consisted of being able to search for information from online sources and adapt or modify the information found. In their view, information seeking skills are necessitated by the need for educators to

command evidence-based knowledge and to be able to adapt and integrate this knowledge in their work. In this respect, one of the interviewees noted:

"It's not enough to be able to find information and knowledge. You have to be able to adapt it in your own work and develop your work based on this knowledge." Group 3

Digital competence

In the view of the educators, digital competence was comprised of three sub-categories: 1) being knowledgeable of digital technology and having the ability to use it, 2) understanding the potential of digital technology, and 3) utilising digital technology in teaching.

Knowledge of digital technology and the ability to use it

The educators gave extensive descriptions of digital technology. For them, digital technology consisted of electronic devices, applications, and software. *Electronic devices* referred to technology that facilitated distance teaching, and teaching technology (e.g. simulation technology, smart boards, robotics, health technology). *Digital applications and software* were associated with time and task management, digital learning environments, presentation graphics, quizzes, communication, social media, as well as text and information processing. As an example of, below is an extract from one of the interviews expressing the diverse use of technology:

"It [using technology] is an everyday job for us. We're using presentation programs and graphics and we have numerous possibilities. Then we have the learning platform that we use on the web when we're working." Group 8

Nevertheless, knowledge of digital technology was not considered enough on its own. The educators felt digital skills were also needed in order to utilise technology. The interviewees felt that educators should be able to both use technology by themselves and teach their students to use it. The following extracts from the interviews illustrate these sentiments.

“Digital competence – is having the competence to use technology and to know what it is and to have the ability to evaluate it.” Group 4

“It [digital competence] means having the ability to teach students how to use it.” Group 7

Understanding the potential of digital technology

According to the interviewees, understanding the potential of digital technology consisted of five sub-categories. They felt that digital technology facilitates time saving, opens up the potential for learning and working remotely, motivates student learning, and encourages more versatile modes of communication. The educators discussed these things from their own perspectives and those of their students.

Time management was seen as a challenge for students and educators alike. In the views of the interviewees, digitalisation helps to alleviate this challenge. The educators stated that technology makes it possible to learn some things faster than with traditional approaches. This sentiment is expressed in the extract from one of the interviews below:

“There has been a lot of discussion on resources and time management, and all of us—students and teachers—have problems with it. If only we were able to integrate digitalisation more in our teaching and learning.” Group 2

According to the educators, students are more able to learn remotely as a consequence of digitalisation. Studying is no longer bound by place or time. Indeed, digitalisation has made studying more accessible than ever before. Students can participate in lessons from home through a remote connection and can even take exams at home, for example. Digitalisation also supports students studying from home through the availability of databases that can be accessed from their desktop computer, laptop, or other networked device. In this respect one of the interviewees noted:

“It [digitalisation in education] gives us the option, that we don’t have to come to the institute to find some particular paper. Probably the knowledge can be

found via some cloud services or then we can have remote access to the institute's electronic databases." Group 9

The educators noted that remote working has become increasingly common as a consequence of digitalisation. Nowadays, their work is no longer tied to the education site and they are able to work from different locations. In addition, the concept of working time has changed; while this gives educators more freedom, it also raises the issue of how to separate work and free time. This was explained by one of the interviewees who stated:

"We have iPads and laptops, which means that we can work anywhere and anytime, which is both a good and a bad thing." Group 9

The educators thought that digitalisation and the utilisation of technology could be used to motivate students to study. Digitalisation has also provided new means for students and educators to communicate. Furthermore, technology makes it possible for everyone to participate in discussions and allows educators to follow student conversations more closely. One of the interviewees explained:

"It [digital technology] adds interaction—students can participate discussions using their mobile phones—even the quieter students can participate this way." Group 3

Utilising digital technology in teaching

According to the interviewees, the utilisation of digital technology in teaching also includes the gamification of teaching and teaching via virtual reality/3D technology. Educators can use simple games, such as quizzes, as well as more complicated games that require advanced knowledge and skills in order to adapt learning outcomes. This was explained by one of the interviewees in the short extract below:

"We have a game that reflects the changes that happen during ageing. With the help of the game, students can be more emphatic, because they can

experience how it feels, when you no longer have control over your own body.” Group 10

According to the educators we interviewed, the use of virtual reality (VR) environments in teaching opens up new opportunities that were not accessible before. VR technology enables educators to incorporate different work environments as a part of the education. For example, with the help of VR and motion detectors, students can experience surgery or even participate in it. This allows students to experience the consequences of their actions and decisions in a safe environment in ways that would not necessarily be possible in other forms of education. The interviewees explained this by saying:

“We are able to see whether the student is guiding the customer and giving the right instructions. With the help of digital technology, we can evaluate how the customer is moving based on the student’s guidance.” Group 2

“You can try things that are not possible to organise in other ways.” Group 3

Ethical competence

The educators views on ethical competence were divided into three sub-categories: 1) being aware of student equality, 2) prioritising the learning experience, and 3) emphasising digital literacy.

Being aware of student equality

The educators expressed concerns about student equality regarding digitalisation. They speculated whether their students would have equal access to education provided through digitalisation. The educators also noted that students have different baselines regarding their digital competence, which can make it hard to plan courses accordingly. In addition, not all devices are compatible with each other or different apps and programmes, which can cause problems. The following extracts from the interviewees illustrate these views:

“You can’t make assumptions, that a student can do this or that, because every student has their own baseline.” Group 10

“Sometimes we think that students can [use digital technology] really well because of their generation, but actually their competence area may be quite narrow—they can use chatting software and Instagram but it is different when it comes to using Word or making a presentation.” Group 7

“All students should have same kinds of devices, because not all devices are compatible with every programme.” Group 3

Prioritising the learning experience

The student learning experience was considered to be the main priority by the interviewed educators in the current study. The educators' own attitudes towards digital technology and their opinions of it should not be a barrier to the utilisation of good practices in digital pedagogy. On the other hand, the educators expressed concerns about digital technology being a must instead of a means to enhance student learning. This view is illustrated in the extract from one of the interviews below:

“It [utilisation of digital technology] should not be the purpose or goal, it should only be a method to reach the goal.” Group 2

The educators also noted that they should always remember and consider the students' future profession while planning and making decisions about teaching methods. The aim of education is for students to learn the skills they need in their future profession. This was explained by the interviewees:

“Digitalisation can't be the major vision, the care of the patient is the major vision.” Group 9

“Practice isn't so digitalised, and to a certain degree, it never will be, after all, we are teaching practical professional here.” Group 9

Emphasising digital literacy

The educators considered digital literacy essential to teaching and reminding students to critically evaluate and appropriately use information collected via digital technology, including the Internet. Another important issue raised was to teach what is appropriate to publish on social media. On this topic, one of the interviewees noted:

“Students are familiar with using social media and digital technology. It is a challenge to teach them what you can share on social media and what you can't legally and because of professional confidentiality.” Group 4

5. DISCUSSION

The aim of this study was to describe social and healthcare educators' perceptions of competence in digital pedagogy. According to the educators interviewed, competence in digital pedagogy included three main areas of competence: pedagogical, digital, and ethical competence. The study participants were on average, typical Finnish social and healthcare educators (Salminen et al. 2013). The participants were mostly (95%) women with a mean age of 49.7 years. They had extensive work experience (mean 14.9 years) and the majority (54%) of the educators were involved in educating nursing students. Despite their wealth of knowledge of digital technology and its potential, the educators responded with concern about the utilisation of digital technology in education. They were worried that the digital technology might be utilised for its own sake alone and not because it would be a better solution for the students' learning. Another concern was student equality when it comes to utilising digital technology—whether everyone would have access to the required devices or have the competence to use them.

In the eyes of the educators, pedagogical competence is a precondition for competence in digital pedagogy. Pedagogical competence is the factor that separates digital competence from competence in digital pedagogy (Redecker 2017). In line with previous research (Mikkonen et al., 2018, Koivula et al., 2011), the educators in the present study thought that knowledge and management of the subject matter in question was especially important. For them, expertise in the

specific area of social and healthcare is essential and forms the basis for the teaching. Moreover, in relation to pedagogical competence, knowledge of teaching methods was also considered to be important. Based on the interviews it seems that utilising technology in a pedagogically efficient way was challenging.

The educators described digital technology extensively and appeared to be highly knowledgeable about digital technology and had many ideas on how to utilise it. Digital learning environments and digital technology have been a part of teaching since the beginning of the 21st century. However, it seems that educators are still little unsure of how to best integrate digital technology into their teaching. It is important to note, here, that while competence in digital pedagogy is currently included in the education of social and healthcare educators in Finland, most of the participants had been working as educators for over 15 years. Their initial education was very different, and it is possible that competence in digital pedagogy was not included in their education at all. It would, then, appear to be necessary to develop accessible, continuous education on digital pedagogy for educators. The content of this education should focus on how and when to utilise digital technology instead of how to use a particular application or piece of software.

The difference between previous research (McDonald et al., 2018, O'Connor et al., 2018, Redecker, 2017, Webb et al., 2017) and this study, was that the educators in this study emphasised distance learning and teaching in their responses. This is understandable considering the changes in education globally. Indeed, the utilisation of digital technology has made studying more accessible and digital technology facilitates tailored, personalised educational content (Redecker, 2017).

Digital technology also makes it possible to support individualised learning and enhances the interaction between students, which can promote learning (McDonald et al., 2018). Digital technology can also be used to help students' stress management and study skills (O'Connor et al., 2018) and offers educators a way of modifying teaching and assessment methods to meet student needs (Redecker, 2017). The educators participating in this study also recognised this, and thought that a student-centred approach to teaching should be included in digital pedagogy. Despite the educators having ideas about how they could benefit from digital

technology, they still had concerns about whether their students would learn via digital technology and whether all students have equal opportunities when it comes to using digital devices. It is clear that further discussion is needed when it comes to an approach to digital pedagogy in social and healthcare education.

This study was a part of a larger qualitative study and competence in digital pedagogy was one part of the research (Mikkonen et al. 2019). Because there is a lack of research concerning social and healthcare educators' competence in digital pedagogy, more research is required.

5.1. Limitations and reliability

This study has some limitations. Competence in digital pedagogy was one theme out of the five themes included in the interviews and this might have had an impact on the educators' statements. Because there were five different themes and each theme was discussed in each interview, it is possible that there was not enough time to discuss competence in digital pedagogy as fully as possible.

The aim of this study was to describe healthcare educators' perceptions of competence in digital pedagogy, but it is also possible that the educators sometimes discussed different topics because they may not have had a unified understanding of the concept of competence in digital pedagogy. During the interviews, the interviewers did not control or steer the interviews too much because we wanted to find out what the educators thought about digital competence.

To increase the reliability of this study, the data analysis and reporting have been described as accurately as possible with the help of examples from the original data (Graneheim and Lundman, 2004). In addition, the research group discussed the results during the analysis process and the findings are the result of the consensus reached. This study was conducted as part of the wider TerOpe-project (Mikkonen et al, 2019) and drew strength from the involvement of a group of experienced researchers.

5.2. Conclusions

According to the educators' perceptions, social and healthcare educators' competence in digital pedagogy consists of pedagogical, digital, and ethical competence. The educators should be able to use digital technology in pedagogically meaningful ways to support student learning and should teach essential digital skills for future professionals and this should include education regarding the ethical aspects. In the future, more research is needed concerning the level of social and healthcare educators' competence in digital pedagogy. The results of this study can be utilised while developing an instrument to evaluate the competence levels in digital pedagogy of educators in the healthcare sector.

References

- Cowling, M., Birt J., 2018. Pedagogy before Technology: A Design-Based Research Approach to Enhancing Skills Development in Paramedic Science Using Mixed Reality. *Information* 9 (29), 1-15.
- Declaration of Helsinki, 2013. Ethical principles for medical research involving human subjects. *JAMA* 310 (20), 2191–2194.
- Elo, S., Kyngäs, H., 2008. The qualitative content analysis process. *Journal of Advanced Nursing* 62 (1), 107-115.
- European Commission, 2018. Descriptions defining level in the European Qualifications Framework (EQF). <https://ec.europa.eu/ploteus/mt/node/1440>
- From, J., 2017. Pedagogical Digital Competence – Between Values, Knowledge and Skills. *Higher Education Studies* 7 (2), 43-50.
- GDPR, 2016., Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 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).
- Gonen, A., Sharon, D., Lev-Ari, L., 2016. Integrating Information Technology's competencies into academic nursing education – An action study. *Cogent education* (2016) 3, 1-9.
- Graneheim, U. H., Lundman, B., 2004. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today* 24 (2), 105-112.

Jackson, C., Bell, L., Zabalegui, A., Palese, A., Sigurðardóttir, A., K., Owen, S., 2009. A review of nurse educator career pathways; a European perspective. *Journal of Research in Nursing* 14 (2), 111-122.

Koch, L., 2014. The nursing educator's role in e-learning: A literature review. *Nurse Education Today* 34 (11), 1382-1387.

Koivula, M., Tarkka, M.-T., Simonen, M., Katajisto, J., Salminen, L., 2011. Research utilisation among nursing teachers in Finland: a national survey. *Nurse Education Today* 31 (1), 24-30.

van Laar, E., van Deursen, A., van Dijk, J., de Haan, J., 2017. The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behaviour* 72 (2017), 577-588.

Le Deist, F., Winterton, J., 2005. What is Competence? *Human Resource Development International* 8 (1), 27-46. Marton, F., 1986. Phenomenography - A Research Approach to Investigating Different Understandings of Reality. *Journal of Thought* 21 (3), 28-49.

McDonald, E., Boulton, J., Davis, J. 2018. E-learning and nursing assessment skills and knowledge – An integrative review. *Nurse Education Today* 66, 166-174.

Mikkonen, K., Koivula, M., Sjögren, T., Korpi, H., Koskinen, C., Koskinen, M., Kuivila, H-M., Lähteenmäki, M-L., Koskimäki, M., Mäki-Hakola, H., Wallin, O., Saaranen, T., Sormunen, M., Kokkonen, K-M., Kiikeri, J., Salminen, L., Ryhtä, I., Elonen, I., Kääriäinen M., 2019. TerOpe-kärkihanke, Competence and development of social-, health care and rehabilitation educators. <http://jultika.oulu.fi/Record/isbn978-952-62-2479-4>

Mikkonen, K., Ojala, T., Sjögren, T., Piirainen, A., Koskinen, C., Koskinen, M., Koivula, M., Sormunen, M., Saaranen, T., Salminen, L., Koskimäki, M., Ruotsalainen, H., Lähteenmäki, M-L., Wallin, O., Mäki-Hakola, H., Kääriäinen M., 2018. Competence areas of health science teachers – A systematic review of quantitative studies. *Nurse Education Today* 70, 77-86.

O'Connor, S., Jolliffe, S., Stanmore, E., Renwick, L., Booth, R., 2018. Social media in nursing and midwifery education: A mixed study systematic review. *Journal of Advanced Nursing* 74 (10), 2273-2289.

Personal Data Act 523/1999, (1999). Ministry of Justice. Finland. URL: <http://www.finlex.fi/en/laki/kaannokset/1999/19990523>.

Redecker, C., 2017. European Framework for the Digital Competence of Educators: DigCompEdu. Punie, Y. (ed). Publications Office of the European Union, Luxembourg.

Reis, C., Jorge, J., York, H., Flacton, L., Johansen, S., Maehle, S., 2018. A comparative study about motivations, expectations and future plans for professional development in four European radiography programs. Radiography 24, e91-e97.

Salminen, L., Stolt, M., Koskinen, S., Katajisto, J., Leino-Kilpi, H., 2013. The competence and the cooperation of nurse educators. Nurse Education Today, 33 (11), 1376-1381.

Salminen, L., Stolt, M., Saarikoski, M., Suikkala, A., Vaartio, H. & Leino-Kilpi, H., 2010. Future challenges for nursing education – A European perspective. Nurse Education Today 30, 233-238.

Sjostrom, B., Dahlgren, L., 2002. Applying phenomenography in nursing research. Journal of Advanced Nursing, 40 (3), 339-345.

University of Applied Sciences A1129/2014, 2014. Law Amending the Act L2015/325 (in Finnish). Ministry of Education and Culture, Finland. <http://www.finlex.fi/fi/laki/alkup/2015/20150325> (accessed 20.6.2019).

Webb, L., Clough, J., O'Reilly, D., Wilmott, D., Witham, G., 2017. The utility and impact of information communication technology (ICT) for pre-registration nurse education: A narrative synthesis systematic review. Nurse Education Today 48, 160-171.

World Health Organization (WHO), 2016. Nurse educator core competencies. https://www.who.int/hrh/nursing_midwifery/nurse_educator050416.pdf (accessed 20.6.2019).

Zlatanovic, T., Havnes, A., Mausethagen, S., 2017. A Research Review of Nurse Teachers' Competencies. Vocations and Learning 10, 201-233.

Table 1. Example of the analysis process.

ORIGINAL STATEMENT	REFINED STATEMENTS	SUB-CATEGORY	MAIN CATEGORY
<i>"But it must be that a physiotherapy educator must have a basic education in the field and that there has to be a professional degree as a background."</i> Group 1	<i>"Educators must have a basic education in the field"</i> Group 1 <i>"Educators must have a professional degree"</i> Group 1	Subject knowledge	Pedagogical competence
<i>"Yes – I was just learning to use a new e-learning platform and I was thinking that I should have more competence regarding picture editing and in everything related to visualising the teaching, like the competence to use technology to present subject matters, for example, if I produce a video, how can I cut and modify it and how can I create different kinds of quizzes, that could be checked automatically, that I did not have to do it myself. So the technological competence beside the subject knowledge is important, but the subject knowledge is the main thing. If your subject knowledge is not strong you cannot achieve anything, even though you may have pedagogical competence or digital competence."</i> Group 4	<i>"The subject knowledge is the main thing"</i> Group 4 <i>"If your subject knowledge is not strong you cannot achieve anything with pedagogical competence or digital competence."</i> Group 4		
<i>"But then also it is the subject knowledge that I would almost see as more important. Because if you do not have the subject knowledge, it does not matter how you try to teach, you do not have anything to teach. You need to manage the content."</i> Group 10	<i>"I would almost see the subject knowledge as more important."</i> Group 10 <i>"If you do not have subject knowledge, it does not matter how you try to teach, you do not have anything to teach."</i> Group 10		
<i>"You must possess subject knowledge and also all the equipment."</i> Group 7	<i>"You must possess subject knowledge."</i> Group 7		
<i>"What is our [pedagogic] competence? During these 10 years that I have been working it has probably changed quite a bit or expanded. Of course it includes, or at least I have experienced...that it is important to possess subject knowledge."</i> Group 5	<i>"It is important to possess subject knowledge."</i> Group 5		

Table 2. Demographic characteristics of the educators.

Age	Average	49,7 years
	Range	31-66 years
Gender	Female	35
	Male	2
Work experience as an educator	Average	14,9 years
	Range	1-38 years
Educational degree	Doctoral degree	6
	Master's degree	27
	Did not tell	4
Education field	Nursing	20
	Physiotherapy	9
	Social work	3
	Midwifery	1
	Radiographic	2
	Bioanalytics	1
	Did not tell	1

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- Subject knowledge
- Expertise in teaching methods
- Expertise in working life skills

- Knowledge of digital technology and ability to use it
- Understanding the potential of digital technology
- Utilising digital technology in teaching

- Being aware of student equality
- Prioritising the learning experience
- Emphasising digital literacy

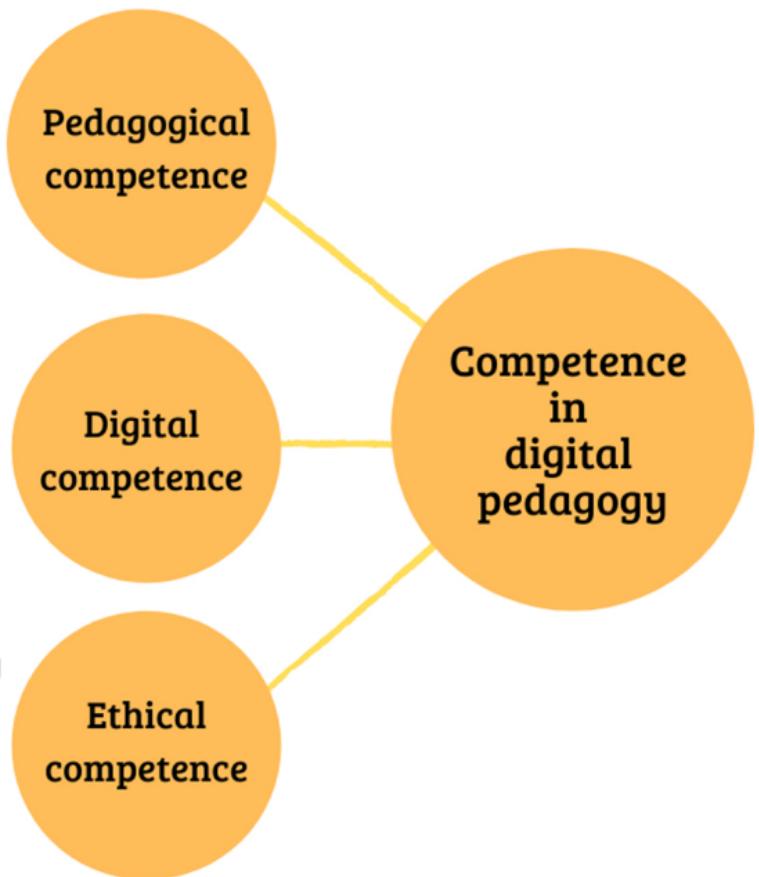


Figure 1