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3.3 The Best Practices in Teaching and Learning Digital Nursing

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Digital and online teaching and learning methods are increasingly used in nursing education. Health, information and technology literacies belong to the fundamental skills of future workers in the 21st century (Stauffer, 2020). Digital skills are defined broadly. According to the UK definition, the 21st century contain essential abilities that are needed in the future in professional work (Figure 9) (Ascentis, 2019).

The abilities to use devices and handle information include for instance the identification and use of appropriate resources to maintain and improve digital skills. Creation and editing skills mean that a person knows and understands terminology and concepts relating to image editing and enhancing. Communicating abilities consists of the identification and use of appropriate modes of online communication for a range of contexts and audiences. Transacting abilities refers to skills that a person can use while buying online services safely. The ability of being safe and responsible online means, among other things, that a person is capable of applying simple methods to avoid physical and psychological health risks while using devices. These essential skills are presented in Figure 9.

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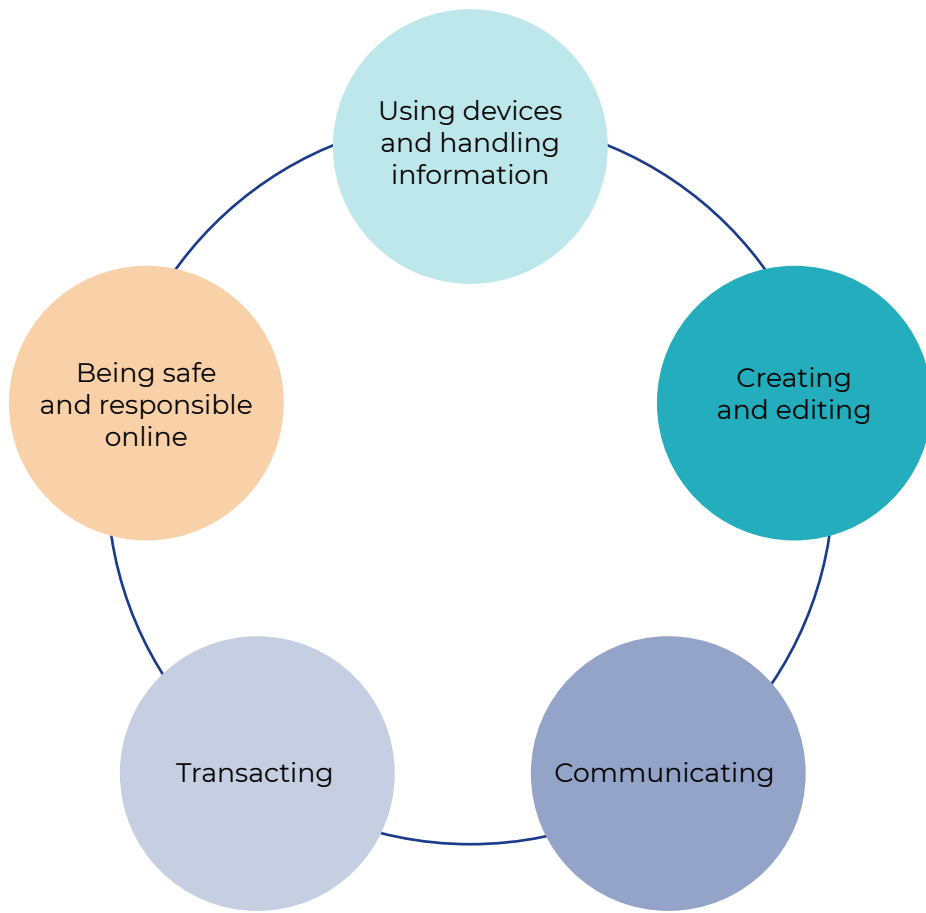
FIGURE 9. Essential digital skills in 21st century (Ascentis, 2019, modified)

In UNESCO terms digital skills are defined as a range of abilities to use digital devices, communication applications, and networks, to access and manage information. They enable people to create and share digital content, communicate and collaborate, and solve problems for effective and creative self-fulfillment in life, learning, work, and social activities at large. (UNESCO, 2018.) Often digital and online skills are used as synonyms. The both definitions are close to each other and contain digital and/or online skills and they both work as a framework of this review.

The advances in digitalisation in healthcare have been rapid. However, information about the best teaching and learning practices and methods,

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and students' perceptions of them, have received less attention in research from the perspective of nursing education (Koekeritz, Malkiewicz, & Henderson, 2002). This chapter introduces literature review findings published in 2013–2017. The aim of the review was to answer the question "What best digital or online practices are described in the literature for teaching and learning in nursing education in 2013–2017?"

Description of data extraction, synthesis and analysis

The literature search was conducted using the reference management software Refworks ProQuest to sort the records (Moher et al., 2009). The keywords for the search were: (((MH "Education, Nursing+")) OR ("nursing education")) AND (digital* or online AND ((best practice*) OR (good practice*)). After using the exclusion criteria (Table 3), the remaining articles were assessed and analysed using the qualitative content analysis. The process used to reduce and evaluate the records is illustrated in the Prisma diagram, Figure 10 (Moher, Liberati, Tetzlaff, & Altman, 2009).

Table 3. The inclusion and exclusion criteria of the literature review

Inclusion criteria	Exclusion criteria
Full text available	On other educational field as nursing
Research article	Not free of charge
English language	
On nursing education	On simulations, wound care etc.
Peer-reviewed	

The search using CINAHL Complete and manual search produced 52 articles. Ten of those studies were qualitative and two were quantitative. In addition, one of the studies dealt with a development of the education programme, and two with guidelines or instructions for the improvement of education. After the removal of duplicates (n=6) and records with invalid abstract content (n=14), 32 full text articles were the focus of further assessment. These were evaluated for their eligibility and content, and this led to the removal of 15 studies. Two studies were further excluded because the full text was not available free of charge. All studies were in English because the English language was used as one of the criteria for the search.
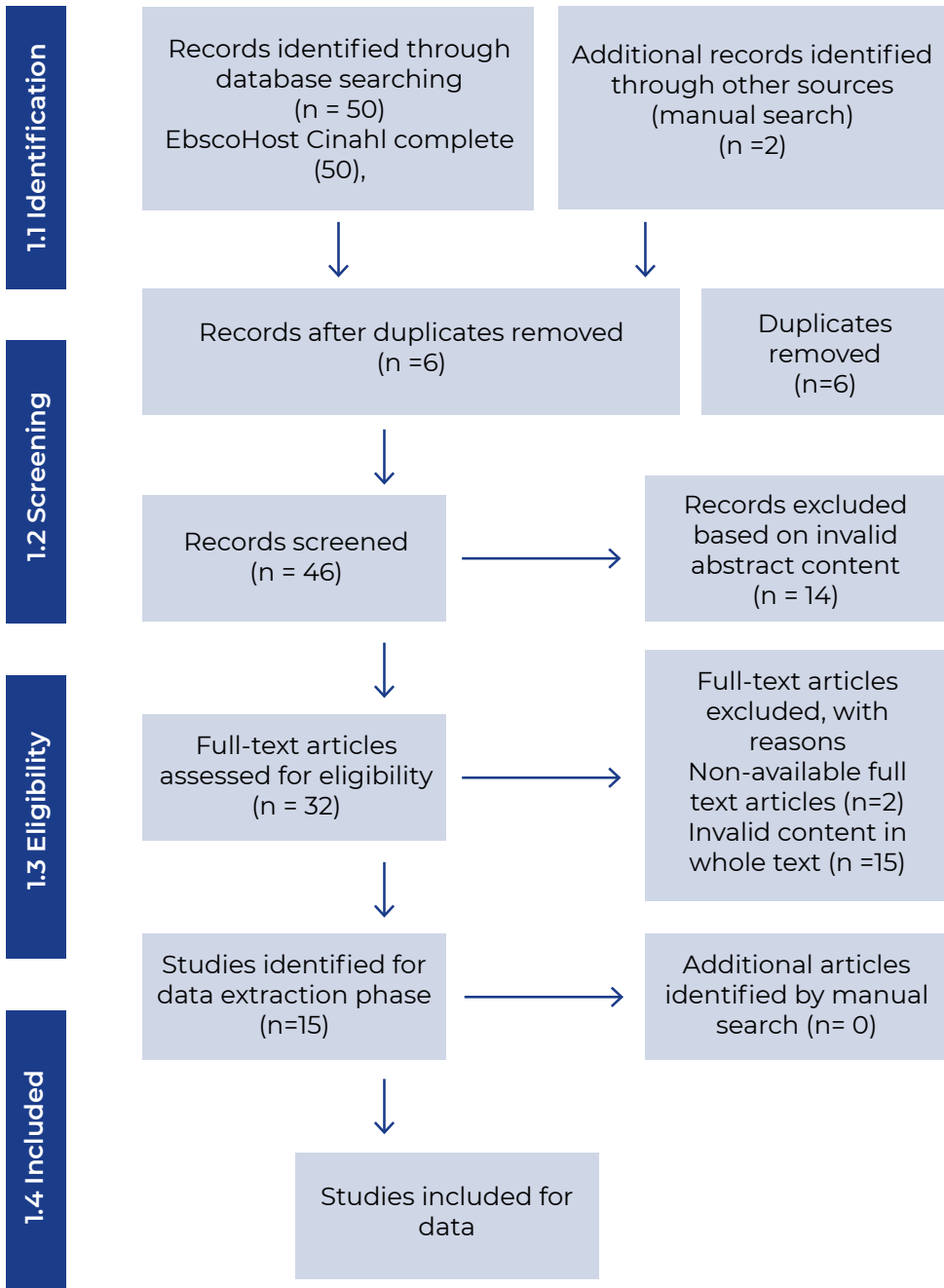
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PRISMA 2009 Flow Diagram

FIGURE 10: Prisma chart of the Best Practices in Teaching and Learning Digital Nursing

An integrative review was applied to the literature data. Through interpretation and using qualitative analysis in the collected data, two main themes emerged: 1) interaction and communication between a facilitator/teacher and a student, 2) the importance of commitment to teaching and learning. These themes were intertwined with each other. The findings from this literature review were utilised in the development and design of the DigiNurse Model.

Interaction and Communication

The literature suggested that interaction and communication are the basic elements in teaching and learning. Plante and Asselin (2014) identified that social presence promotes sense of caring and belonging in online courses. According to Gazza and Hunker (2014), strategies that improve student retention in online graduate nursing education programmes are related to the interaction and communication between a facilitator (teacher) and a student. Students expect social presence from teachers and their attentiveness to their individual characteristics. Foronda and Lippincott (2014) as well as Gazza and Hunker agree that students appreciated online interaction, and the virtual classroom was described by students as being "more interactive and learner-centred than a traditional classroom." It produced enjoyment and was felt as being convenient (Foronda & Lippingcott, 2014). However, there were also contradictory views compared to Foronda's and Lippingcott's results on the social presence of teachers and their role. Smita and Pawan (2015) studied the relation between instructional design and overall meaningful interactions among online students. They found that the most important role of the instructor in an online class is to facilitate student participation and learning. A teacher works as a facilitator in online classes. Harasim (2012) also emphasises, according to Breen (2013), the facilitator role. Breen explored Harasim's model in her qualitative study. This online collaborative model (OCL) identifies a student's role as being independent when planning their learning event. According to Harasim's model, a teacher observes, helps students in problematic situations and confirms that learning outcomes are achieved. Breen (2013) stated that Harasim's theory is useful as a framework of teaching, but the development as a group cohesion should be evaluated independently along with the development of interpersonal skills. The development of group dynamics occurred only in small groups. In this, Frazer, Sullivan, Weatherspoon and Hussey (2017) agreed with Breen (2013). According to Frazer et al. (2017), effective online teachers facilitate, connect, lead and work in synchrony with students. The authors claim that these teachers' role characteristics enable students to

gain success and advance in their studies and later encourage the utilisation of knowledge in their professional role. However, Smita and Pawan (2015) emphasise a balance of instructor involvement in online discussion: "not too much or too little." A proper balance of instructor participation in online discussion develops the quality of interaction (Smita & Pawan, 2015).

Wattenbarger, Mitchell and Scalf (2017) studied interaction and communication in two groups. One worked with faculty-driven interactive learning modules and the other independently with online material. Online material included a standardised pre-developed course cartridge created via a publishing vendor. Wattenbarger et al. (2017) evaluated and compared student satisfaction and achievement with their course learning outcomes. The results showed that students who were grasping at the content of the pre-developed cartridge material were not as active in the online learning environment and did not feel a personal connection with their instructor. However, the cartridge material group later gained better learning outcomes than those students who had participated in interactive learning modules.

McNeill, Dunemn, Einhellig and Clukey (2017) concentrated on exploring professional behaviour focusing on interaction and communication. They claimed that instructors' professional behaviour is essential when delivering courses and orienting students for workplaces. Moreover, the students expected professional behaviour from an instructor and preceptor in online courses. As nursing students' clinical training periods form a large part of their studies, the teachers' way of interacting and communicating with students is extremely important. The students had also experienced

or identified uncivil behaviour, such as rude comments. In the students' opinion, lack of timely feedback on assignments and unclear tasks were examples of uncivil behaviour (McNeill et al. 2017). They also suggest closer exploration of small-group, breakout discussion groups for improving the quality of interaction. These methods can ease lacking feedback situations and provide an option for the airing of thoughts. An interesting observation was that randomisation promoted interaction in student groups on account of the students not being in their known cohorts.

Interaction and communication in clinical environments make up a large part of students' education. Tolonen and Värri conducted a survey in 2017 investigating how information technology was taught to students of the healthcare professions in Finland. Their results showed that digital technology is available at nursing schools, but it is expected that students learn to use information and communication systems during their training periods or later after graduation. However, information communication technology (ICT) education varied a lot between schools, and healthcare professionals had had only a little additional ICT training at work. The lack of further training had an undesirable impact on nurses' attitudes towards the use of digital tools. However, several other studies have shown that nurses are willing to have e-learning courses and employ mobile learning at point of care if time and learning resources are organised (Lahti, 2014; Gazza, 2017; Mather & Cummings, 2017; Tolonen & Värri, 2017). There are many tools available for communicating online, such as virtual platforms that allow flexible, time-free work (Slade, Wolf, Spadaro, & Gazza, 2013). Support and encouragement of managers and organisations are of great importance to nurse supervisors' as well as teachers' commitment to digital teaching and learning (Mather & Cummings, 2017).

The importance of commitment

Teaching and learning require commitment from all participants in the teaching situation (Price et al., 2016). This fact concerns all stakeholders and organisational levels, including managers, students, teachers and preceptors. Mann, Medves & Vandenkerkhof (2015) have stated that nursing faculties may need guidance for effective introduction of mobile technology. The authors address that mobile technology may promote evidence-based practice and also optimise the use of acquired technological skills in clinical settings. However, Mann et al. (2015) likewise emphasise that attention should be paid to students' attitudes.

Mather and Cummings (2017) investigated the findings of a previous study to elucidate among other things the priorities for action and focus of impetus for advocating the progression of standards and guidelines at an organisational level. The organisational commitment produces the best clinical outcomes for patients and therefore prioritises mobile learning as a component of digital professionalism within the healthcare organisation (Gazza, 2017; Mather & Cummings, 2017).. Furthermore, student commitment can be promoted by teaching the use of technology. However, insufficient skills in using the devices and a lack of support from clinical staff in clinical settings have been identified among students (Mann et al., 2015). This is an important gap to recognise, because attitudes towards technology may lead to an unwillingness to use mobile technology after graduation.

Discussion and conclusion

This literature review on the best practices in online teaching and learning provides some important views for reflection. One cannot underestimate the influence of interaction and communication in online or traditional teaching classes. The literature shows that the same elements can be found in both, confirming for example the importance of social presence and the feeling of belonging between participants. Therefore, attention should be paid to the ways of communication, because this can have a long-lasting impact on student behaviour after graduation (McNeill et al., 2017). Interaction between participants develops better in small groups (e.g., Smita & Pawan, 2015), and there are various digital tools for virtual small group work available. According to some of the reviewed studies (Foronda & Lippincott, 2014; Gazza & Hunker, 2014) there is a positive impact of social presence and good interaction in online teaching on learning outcomes. However, this finding seems to be contradictory, because some older studies along with recent ones do not support this. In one pioneering study, Mahoney (2006) examined similarities and differences of sense of belonging, comparing students' feelings in online and face-to-face courses. The results showed that students could gain a sense of belonging regardless of the way or method of teaching. Statistically significant differences were not found between the two groups. Therefore, Mahoney (2006) concluded that establishing an environment where one feels connected is more important than the type of structural environment. In recent literature, Männistö et al. (2019) evaluated the effects of a digital educational intervention on collaborative learning in nursing education in two groups. The intervention group studied using a collaborative

digital learning environment and the control group studied in the traditional classroom setting. There were no significant differences between the groups in terms of student satisfaction. However, the students' satisfaction in the intervention group decreased later, but they had higher satisfaction in the area of promoting collaborative group work and they also received significant higher grades in the final course evaluation.

The participants' commitment to teaching and learning is essential in both online and traditional classrooms. This creates positive learning outcomes and is one of the prerequisites of successful learning (Frazer et al., 2017). Commitment is also desired for lifelong learning, which has become more important due to the rapid advancement of digitalisation in healthcare and around the globe. Commitment from educational and healthcare organisations and representatives of working life is also needed, because only collaboration can advance the achievements of the objectives of learning. Coping with the challenges of digitalisation in healthcare staff cannot be a matter of reactive, daily survival (Tolonen & Värri, 2017). Moreover, overwhelming online material can be a hazard to learners, and students are concerned about the quality of the material they read (Elf, Ossiannilsson, Neljesjö, & Jansson, 2015). Therefore, education on digital literacy is needed, too (Stauffer, 2020).

This explorative review of the research articles on the best teaching and learning online practices was focused on literature published in 2013-2017. The current situation with the COVID-19 pandemic has accelerated online teaching and digital learning environment development. The rapid transition of teachers and students to online work has shown that those in working life also have a great opportunity to increase the use of the web in their learning. New digital tools, such as virtual platforms, have been rapidly adopted to learning environments (Mather et al., 2020). Online teaching is here to stay, and the development of the best online teaching and learning practices continues.

Recommendations for online teaching and learning based on the explorative literature inquiry (More information on DigiNurse project website: https://projects.tuni.fi/diginurse).

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- Small groups, randomisation of students for groups
- Provision of social presence and attention to students' individual characteristics if possible
- Support of students' acquisition of related skills and learning devices
- Continuous education on online related skills
- Collaboration with partners and stockholders involved with the education
- Provision of online courses to preceptors of the clinical environment
- Provision of quality online courses
- Support of student interaction with each other during teaching sessions
- Consideration of the participants' role in teaching and learning sessions
- Organisational and faculty support: guidelines and resources for teaching and learning

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