



Review

Use of mobile devices in nursing student–nurse teacher cooperation during the clinical practicum: An integrative review



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SUMMARY

Objectives: To identify and appraise study findings on the use of mobile devices, in particular for what purposes and how, in nursing student–nurse teacher cooperation during the clinical practicum.

Data Sources: A systematic literature search was conducted using the PubMed/Medline, CINAHL, PsycINFO and ERIC for primary empirical studies published in English.

Review Methods: An integrative literature review was undertaken. Quality appraisal of the included studies was conducted using design-specific standardized checklists. Studies were thematically analyzed.

Results: Based on the inclusion and exclusion criteria, eleven studies were included in the review. Weaknesses in designs, samples, questionnaires and results, compromised comparison and/or generalization of the findings of the studies. Three main themes were identified: (1) features of mobile devices (2) utility of mobile devices and (3) barriers to the use of mobile devices. Problems of connectivity were the main challenges reported in the use of mobile devices. Participants used mobile devices primarily as reference tools, but less frequently as tools for reflection, assessment or cooperation during the clinical practicum. Interest in mobile device use during the clinical practicum was reported, but training and ongoing support are needed.

Conclusions: As only a small number of eligible primary empirical studies were found, it is not possible to draw firm conclusions on the results. In the future, rigorous primary empirical studies are needed to explore the potential of mobile devices in providing a supplementary pedagogical method in nursing student–nurse teacher cooperation during the clinical practicum. Robust study designs, including experimental ones, are clearly needed to assess the effectiveness of mobile devices in nursing student–nurse teacher cooperation during the clinical practicum.

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Introduction

The use of mobile devices (personal digital assistant, smartphone or tablet PC) in nursing education has increased in recent years (Grady, 2011; SánchezGarcía and LópezMontesinos, 2013; Doyle et al., 2014) and has been positively received among nursing students (Johansson et al., 2013; Doyle et al., 2014). Mobile devices appear to have the potential to support nursing students in decision-making, improve access to relevant information (Johansson et al., 2012, 2013), and enhance learning during the clinical practicum (Clay, 2011; Johansson et al., 2012). Of the fact that most nursing students are technology literate Millennials who use social networking tools effectively in their daily communication (Hansen and Erdley, 2009) may impact on teaching and learning methods in nursing education (Grady, 2011) such as the implementation of the clinical role of nurse teachers (NTs).

The clinical role of NTs has been debated and subject to changes since the 2000's (Price et al., 2011; Saarikoski et al., 2013), mainly in response to financial rather than, pedagogical pressures (Saarikoski et al., 2009). The clinical role of NTs is variously described internationally; terms used include link teacher, link tutor, instructor, facilitator, clinical lecturer, clinical educator and nurse educator. In this review, the concept nurse teacher (NT) refers to an educationally certified teacher, employed by an educational institution, whose clinical role covers all the variations in the roles and functions of NT in nursing students' clinical practicum. The concept clinical practicum refers to studies of nursing students conducted in clinical practice (European Commission, 2013). Globally, the fundamental clinical role of a NT is to support (Price et al., 2011; Killam and Heerschap, 2013) and facilitate (Ousey and Gallagher, 2010) the learning of nursing students during the clinical practicum; however countries differ widely in the actual implementation of the role (Saarikoski et al., 2013). In the United States, Canada, Australia (McSharry et al., 2010) and Taiwan (Lin and Shen, 2013) the NT mainly works with nursing students during the clinical practicum. In many European countries (Saarikoski et al., 2013) and in New Zealand (Ousey and Gallagher, 2010) the NT's function inclines more

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towards liaison, with nursing student–NT cooperation mainly conducted via e-mail, telephone or virtual learning environment-assisted communication from the educational institution with little or no face-to-face contact (Saarikoski et al., 2013). However, during the clinical practicum, nursing students have limited access to communication technology (Kenny et al., 2009; Wu and Lai, 2009) and they have described feelings of isolation from NT and peers (Kenny et al., 2009; Killam and Heerschap, 2013) and limited opportunities to cooperate with the NT (Wu and Lai, 2009). There is a clear need for introducing mobile devices to allow anytime and anywhere nursing student–NT cooperation during the clinical practicum in keeping with the communication habits of Millennials. Some studies have explored this topic with no consistency (Doyle et al., 2014; Martyn et al., 2014).

Aim

This review aimed to identify and appraise study findings on the use of mobile devices, in particular for what purposes and how, in nursing student–nurse teacher cooperation during the clinical practicum. Based on the findings, recommendations for future research are made.

Methods

Search

An integrative review was undertaken (Whittemore and Knafl, 2005). A systematic literature search was conducted on four electronic databases: PubMed/Medline, CINAHL, PsycINFO and ERIC. The following similar text search terms were used across databases: student*, nurse, nursing, teacher*, tutor*, instructor*, facilitator*, lecturer*, educator*, faculty, university, practice, clinical, placement*, personal digital assistant*, PDA*, handheld*, mobile, device*, wireless, smartphone*,

tablet PC*, tablet computer*, support*, isolation, interacti*, communicat*, cooperat*, connect*, collaborat*, learning, m-learning, and teaching. The search was limited to publications in English from the launch of the databases until March 2014. Supplementation of the electronic database searches by footnote chasing and author search (Kable et al., 2012), yielded no additional references. The inclusion criteria were: (1) primary empirical studies, (2) pre-registration nursing students, nurse practitioner students and/or NTs as participants, and (3) studies reporting findings on mobile device use in nursing student–NT cooperation during the clinical practicum. The exclusion criteria were: (1) review, discussion, proceedings and editorial articles, (2) studies in domains other than nursing education, and (3) studies reporting findings on mobile device use in classroom or skill lab education.

The database searches identified 278 references which were imported into the bibliography management tool RefWorks for removal of duplicates. In the initial screening, references were selected independently by two authors (MSt and C S-L) through title, and in the abstract screening against the inclusion and exclusion criteria followed by a consensus discussion. Full-text articles were then screened against the inclusion and exclusion criteria independently and after a consensus discussion 11 studies were included in the review (Fig. 1).

Data Abstraction and Synthesis

Data extraction was performed and documented (see Table 1) from the included studies ($n = 11$) according to author, year, country, design, sample, data collection method, questionnaire and original research aim. Thematic analysis (Miles and Huberman, 1994; Whittemore and Knafl, 2005) of studies led to identification of nine sub-themes related to mobile device use in nursing student–NT cooperation. No single sub-theme was identified across all studies. The

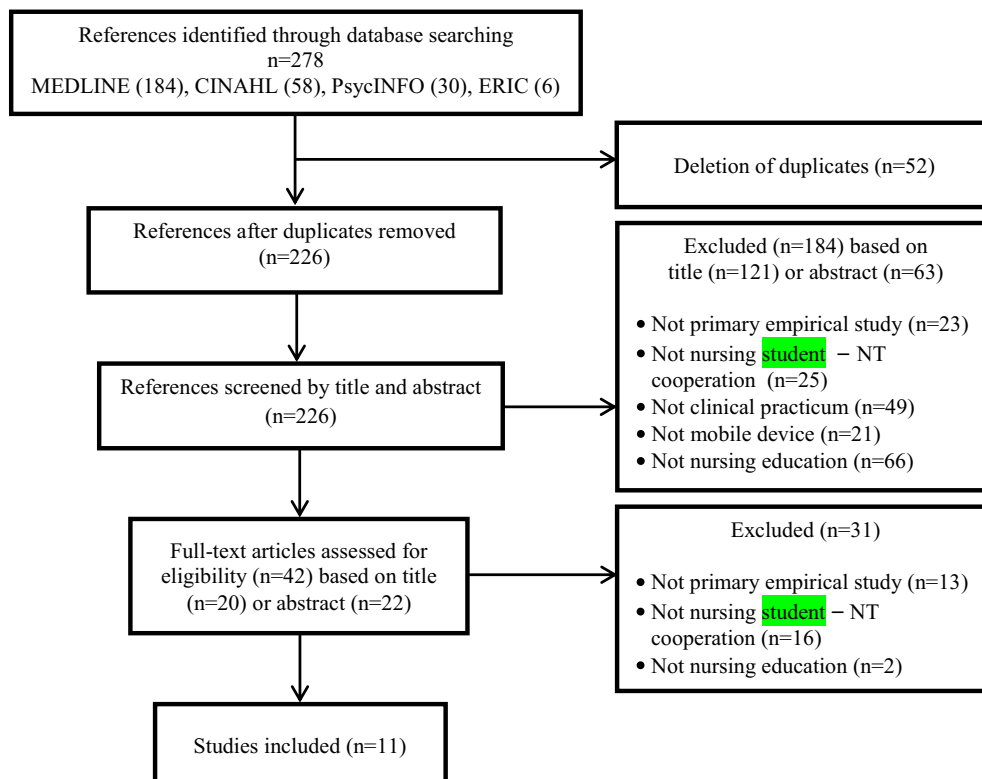


Fig. 1. Flow diagram of study selection process (Moher et al., 2009).

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