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# THE POTENTIAL FOR MOBILE LEARNING IN ENGLISH AS A FOREIGN LANGUAGE AND NURSING EDUCATION

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**ABSTRACT**

This paper investigates the application of mobile technologies to support learning in a specific field: nursing education for English as a Foreign Language (EFL) learners, which is the context of the author's institution. Using a qualitative meta-synthesis methodology, factors from published literature that facilitates success in mobile learning for nursing education and EFL learners are explored. The gap between the m-learning ideals of designing of learning activities that leverage the capabilities of mobility across location, technology, conceptual space, social space and across formal or informal contexts (Sharples et al., 2009) and the published research in formal EFL language learning and nursing education are discussed.

**KEYWORDS**

Mobile learning, nursing education, EFL (English as a Foreign Language) education

## 1. INTRODUCTION

The field of mobile learning (m-learning) is a field that has "attracted a great deal of attention from researchers in different disciplines who have realized the potential to apply mobile technologies to enhance learning" (Keskin & Metcalf, 2011, p. 202). This paper will investigate the application of mobile technologies to support learning in a specific context: nursing education for English as a Foreign Language (EFL) learners. The primary research question is: What are the best practices for implementing m-learning in nursing education within an EFL context? The factors that facilitate success for mobile technology implementations in nursing education and the pedagogical implications for EFL learners in m-learning will be explored.

## 2. METHODOLOGY

For this paper, a qualitative meta-synthesis based on thematic analysis is used. A comprehensive literature search was done, and data collection involved finding published articles and studies in peer-reviewed journals, and dissertations. Search strategies included searching library databases recommended for both nursing and education topics, including education focused ERIC and Education Research Complete, as well as the nursing focused database CINAHL Plus. Searches were for resources matching two combined key terms. The first term was PDA, smartphone, handheld, mobile learning or m-learning. The second term was either nursing education or English as a second language (ESL), English as a foreign language (EFL), English language learning (ELL), second language instruction, or mobile assisted language learning (MALL).

The inclusion criteria were designed based on finding published primary research that used mobile technology to support the course-based learning activities of university level EFL or nursing students. Only primary research reports that included students or faculty were used. Topics needed to include pedagogical strategies for learning with mobile devices, focus on either one of second language learning for academic purposes, or nursing education; and results needed to be reports of experiences, perceptions, usefulness, barriers, affordances and/or learning outcomes of mobile technology implementations. The year 2005 was

chosen as a cut-off point by the researcher, because of the changes in hardware availability and multimedia capabilities of mobile devices is changing so rapidly. Some resources had to be excluded because full text was not available online. This resulted in a final set of articles for the synthesis, with 43 in the nursing subject area, and 23 in the language area (complete list available from author upon request).

## 3. RESULTS

A number of factors were discovered, that aid in successfully implementing m-learning in nursing education. In the case of mobile reference support (the highest frequency of published studies) the benefits included a perceived reduction in the likelihood of medication errors (Beard et al., 2011; Goldsworthy, Lawrence, & Goodman, 2006; Farrell & Rose, 2008), increases in levels of student confidence and self-efficacy (Bauldoff et al., 2008; Goldsworthy, Lawrence & Goodman, 2006), as well as having access to up to date information at the point-of-care (Beard et al., 2011; Brubaker, Ruthman & Walloch, 2009; Cahill & Li, 2011; Clark, Colevins, & Bond, 2009; George et al., 2010; Kenny et al., 2009; Scollin et al., 2006; Wyatt et al., 2010). Perceptions of improved information seeking behaviours and improved decision making capabilities were also listed (Bauldoff et al., 2008; Miller et al., 2005; Williams & Dittmer, 2009). Student impressions in some studies state that the handheld improved their problem solving and critical thinking skills (Fisher & Koren, 2007; Wyatt et al., 2010), their expectation to use professional judgment (Newman & Howse, 2007), and their confidence in the clinical setting (Bauldoff et al., 2008; Colevins, Bond, & Clark, 2006; Fisher & Koren, 2007; Kuiper, 2010; Tilghman, Raley, & Conway, 2006). These perceived benefits were based on a combination of qualitative and quantitative reports.

Successful implementations were also connected by six commonly mentioned factors. Modelling of technology use by instructors was found to be important for students to understand appropriate use (Altman & Brady, 2005; Cibulka & Crane-Wider, 2011; Scollin et al., 2007;; White et al., 2005; Wyatt et al., 2010),. Student orientations, although done in many different ways, need to be done in ways appropriate to the institution. Implementation teams were often multidisciplinary in nature, and involved campus departments such as IT, the library, and financial personnel as well as nursing faculty and support staff. Technical support was often needed, and an agreed upon framework for this support was not found from the literature. A relatively common group of software applications from one vendor chosen by implementation teams, and the recommendation to add titles as needed by students were seen. Costs and support structures are affected by variations between implementation models: loaner or required purchase (Altmann & Brady, 2005; Beard et al., 2011; Cibulka & Crane-Wider, 2011; Hudson & Buell, 2011; McLeod & Mays, 2008). Inclusion of mobile reference support across the curriculum is recommended by many as a way to familiarize students with use before they are to use handhelds at clinical placements (Bauldoff et al., 2008; Beard et al., 2011; George et al., 2010; Hudson & Buell, 2011; White et al., 2005). There were also a number of other listed barriers, including misplacing handhelds because of their small size, transmitting pathogens, and ensuring patient confidentiality rules are adhered to.

M-Learning has been shown to be of value for EFL students. This may be in the form of incidental vocabulary learning, where learners use mobiles to quickly look up the proper meaning of words as they encounter them (Song & Fox, 2008). Intentional vocabulary acquisition can also be assisted in a more teacher-directed fashion, when SMS messages are sent from the instructor to the learner's mobile throughout the day with directed vocabulary content (Levy & Kennedy, 2010; Thornton & Houser, 2005), or when students are given access to systems that help them practice (Zhang et al., 2011; Basoglu & Akdemir, 2010). Listening and speaking skills may be practiced through the playback and creation of podcasts (Abdous et al., 2009; Thornton & Houser, 2005), or the use of phone-in systems (Demouy & Kukulska-Hulme, 2010). M-learning modules can help students practice reading or vocabulary activities in a supported and mobile way (Chen & Hsu, 2008). Kondo et al. (2012) concluded that mobile applications could facilitate second language student's self-directed learning, albeit with teacher support. Limitations have also been noted with m-learning in language learning, and the literature cautions instructors to be cognizant of the readiness level of their students (Stockwell, 2008) and their institutions (Wishart, 2008) to accept mobile devices as learning tools.

# 4. DISCUSSION

The analysis has resulted in highlighting the development, successes and challenges of m-learning in two fields: second language learning, and nursing education. The expansion has been quite different among the two, and even within the fields.

In nursing clinical education, there has been a decidedly systematic implementation of handhelds to fulfil the need of providing point-of-care information to students especially while on their clinical placements. There is plenty of published and relatively cohesive research discussing programs that are highly developed, connected and threaded throughout the curriculum, with attention paid to implementation committees, orientations, support structures, device and software as well as costs to students and faculty all being considered. Faculty development is often mentioned as a key to success, and models and processes for this development are emerging. This is a unique setting, where the use of mobiles appears to be well suited to a specific niche. The use of handhelds has also moved into the nursing classroom stream, as the use of the clinical reference materials as a scaffold before entering the clinical site has been well received. Mobile devices are becoming an ingrained and established part of nursing education, at least in the clinical or clinical preparation realm.

The fields of language learning have had a somewhat different development, where the specific need is not as well defined or agreed upon as it is in nursing clinical application. In the case of language learning, m-learning is being used to support vocabulary acquisition and to provide listening and speaking practice, with success being shown in immediate post-tests and student satisfaction.

Mobile devices are becoming an engrained part of nursing education, so there is the potential to leverage positive language m-learning activities into nursing programs to support EFL students' learning. Nursing clinical education is an exemplary example of using mobiles for performance support, where information is delivered just-in-time and in context to enhance productivity (Traxler, 2010). In the area of language learning, and specifically incidental vocabulary acquisition, the use of mobile dictionaries and translator software as shown by Song & Fox (2008) is also an ideal in-context support for learners. In both fields, there is a replacement of traditional paper-based resources commonly used by learners with a mobile format. While the major benefit of this may simply be convenience of access anytime or anywhere, by modelling for learners how they can make use of mobile supports when they do not have access to paper-based resources or instructors, there is the potential to teach information-seeking behaviours to better support their learning needs. In the case of nursing, these improved information-seeking behaviours were also linked with improved self-efficacy. The field of language learning could possibly take a lesson from nursing implementations, which because of a practice common in the nursing profession have recognized the power of teaching students how to use mobile reference material to support their need for information in the location they need it. Second language learners are constantly in the process of learning new vocabulary outside of the classroom, and using formally teaching students to use mobile devices to learn vocabulary incidentally and as needed may lead to increased self-efficacy as was seen in nursing. Supporting learners and faculty to see mobiles as learning devices may be beneficial. While not all learners may adopt and use these skills, that is not reason enough to exclude the idea.

An often-cited benefit of m-learning is the increased potential for communication and collaboration, (Kearney et al., 2012; Cochrane & Bateman, 2010), although it is not often realized in education (Kukulsa-Hulme et al., 2009). This idea is supported from the synthesized literature. There are examples of teacher-to-learner communications, where the instructor pushes content out to learners and possibly the student responds. This mirrors traditional didactic, teacher-centred instruction. One stand out in this statement is the case of learner-generated podcasts, where there is an example of learner-to-learner interactions, although they are asynchronous. In nursing clinical education, even when interaction capabilities were made available to students, they were not heavily used (Kenny et al, 2009). This underuse could be because in the group of studies reviewed, the need for two-way, synchronous discussions was best served in the face-to-face classroom. The majority of the uses of mobiles involved learners interacting with content. This may mean that research in the fields up to this point are focused on projects that parallel traditional instructional techniques, or it may mean that there is not a need for communication and collaboration in these fields. Perhaps faculty have not imagined new pedagogies that leverage this part of the technology yet.

Conceivably the key to understanding m-learning is from the perspective of the student, and finding what they need to support their learning. In traditional didactic instruction, the instructor is the source of

information. In this new generation of learning, that is no longer the case. Instructors can find ways to help learners discover that their mobile devices may be supportive of their learning in a personalized way. For each learner, the set of tools may vary. The success of providing junior nurses with access to reference support in the context of patient care has been highly successful. For language learners, the environment of language learning surrounds them in their daily activities in classrooms, writing assignments, speaking and listening through their participation as students. Learning to make use of mobile phones as a tool for language learning has potential to support them wherever they encounter issues or have time for review. By no means are mobile phones replacements for instructors or books in a formal learning environment, but they do have solid potential for supporting learners.

The field of m-learning stresses that the potential in the designing of learning activities that leverage the capabilities of mobility across location, technology, conceptual space, social space and across formal or informal contexts. There is a considerable amount of difference between these ideals, and the published research in formal EFL language learning and nursing education. To close the gap, the entry point into m-learning for most faculty will be from a personal standpoint when the technology proves useful in their everyday lives, which is conceivably very difficult or unlikely in some cases. Only with a sense of personal conviction, combined with communities of support individually and institutionally, is it likely than new pedagogies will be imagined.

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