

# Mobile Learning in Initial Teacher Education

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**Abstract:** Initial teacher education (ITE) programs continue to receive critique regarding how they prepare preservice teachers. This comes at time when much emphasis is on effective integration of Information and Communication Technologies (ICTs) into teacher preparation. Research reveals the ubiquity of mobile technologies and their benefits about effective integration in ITE. In New Zealand, the use of mobile technologies in ITE must be considered in how they enhance educational outcomes of learners. However, little is known of how teacher educators introduce such innovative teaching techniques or the effect of mobile technologies on the teaching and learning experiences of preservice teachers. This study will examine teaching and learning practices with mobile technologies in a leading institution in ITE programs in New Zealand. The research question guiding this study is: How is the use of mobile technologies in ITE affecting the teaching and learning experiences of preservice teachers? The outcomes of such research aims to show the impact mobile learning practices have in preparing preservice teachers to meet the demands of 21st Century learning. Educators, policy makers, and university stakeholders may use the findings of this study to inform discussions concerning integration of mobile learning into the curriculum to deliver technology-enhanced learning.

**Keywords:** Mobile technologies, initial teacher education, 21st century learning

## 1. Introduction

The majority of schools in New Zealand are examining innovative learning environments with an increasing number of 'bring your own device' (BYOD) initiatives (Wylie & Bonne, 2014). Effective initial teacher education (ITE) must prepare teachers for these schools to meet the curricular needs and students' learning preferences including integrating ICTs more proficiently. These are new ways of teaching and learning in the 21st Century and preservice teachers must be prepared for this truth (Phelan, 2017). According to Darling-Hammond (2012) ITE programs have been extensively critiqued for not adequately preparing all preservice teachers. Although the quality of teachers is a key determinant in students' achievement, Darling-Hammond (2012) provides evidence that inadequate preparation of preservice teachers heightens teacher attrition rate and under qualified teachers. This author states that these inadequately prepared preservice teachers fail to prepare students for the modern workplaces where 70% of jobs demand the ability to deploy ICTs.

## 2. The Proposed Research

### 2.1 Motivation for the Proposed Research

Mobile technologies are the most commonly used digital devices in schools, universities and society at large (Ally, Grimus, & Ebner, 2014; Baran, 2014; West, 2012). As a result, both teacher educators and preservice teachers experience a mobile medium for teaching and learning, especially preservice teachers who study at the university, in schools, and at home. Mobile technologies can be of great benefit in the teacher preparation process from initial teaching skill development, to teacher assessment, and to supporting the newly qualified teacher in the classroom (Douch, Savill-Smith, Parker, & Attewell, 2010). Research-based evidence shows widespread use of mobile technologies in teacher

education to support digital learning environments (Baran, 2014; O'Bannon & Thomas, 2015). Proliferation of BYOD in K-12 classrooms implies that ITE programs may need to adopt key strategies to prepare future teachers to effectively integrate ICTs into classroom practices to meet the needs of 21st Century learning, including innovative use of mobile technologies.

However, in ITE, there has been little empirical research undertaken to examine the ubiquity of mobile technologies to enhance student teacher preparation (Burden & Hopkins, 2016), and in particular how teacher educators facilitate mobile learning (Burke & Foulger, 2014). It is very challenging for teacher educators to adequately prepare preservice teachers to integrate ICTs into their teaching and learning, and this increasingly includes facilitating learning using mobile technologies (Kearney, Schuck, Burden, & Aubusson, 2012). Teacher educators should be informed about mobile pedagogical practices in order to improve the quality of ITE, and adequately prepare preservice teachers for technology-enhanced classrooms (Phelan, 2017). In other words, teacher educators need to understand and utilize mobile pedagogical approaches while facilitating teaching and learning.

Kearney et al. (2012) identified three specific pedagogical features of mobile learning: Personalisation, collaboration and authenticity. These authors developed a mobile learning pedagogical framework which outlines strategies teacher educators may use while facilitating mobile learning. This study is grounded in this framework enlightened by a socio-cultural perspective. The goal of the proposed study is to investigate teaching and learning practices with mobile technologies in teacher education programs within one university in New Zealand.

## *2.2 Description of the Proposed Research Work*

The proposed study seeks to explore how the use of mobile technologies in ITE affects the teaching and learning experiences of preservice teachers. A leading institution in ITE programs in New Zealand is the site of this research study. Practice with mobile technologies will be compared and contrasted across four ITE programs by exploring how teacher educators are currently facilitating mobile learning. Preservice teachers' perspectives on the use of mobile technologies in preparing them for K-12 classroom teaching will be explored as well.

## *2.3 Research Questions*

The following questions and sub-questions guide the study: How is the use of mobile technologies in ITE affecting the teaching and learning experiences of preservice teachers? The research sub-questions are:

1. How do teacher educators facilitate mobile learning in ITE programs?
2. What are preservice teachers' perspectives on the use of mobile technologies in preparing them for K-12 classroom teaching?
3. How does the use of mobile technologies vary across the four ITE programs?

## *2.4 Contributions of the Proposed Research*

The proposed study aims to provide criterion for innovative use of mobile technologies in enhancing teacher education programs. This will help to prepare preservice teachers who are knowledgeable, and skilled to promote engagement, learning, and well-being of their students. The outcomes of such research will provide empirical evidence about the impact mobile learning practices have in preparing preservice teachers to meet the demands of 21st Century learning. Information obtained from this research study will provide insight into how mobile learning can be integrated into ITE on campus, in schools and other locations to enhance learning with preservice teachers and those who support them at the start of their career. This is particularly relevant with the increase of mobile learning in tertiary institutions (Ally et al., 2014), including BYOD in K-12 schools (Wylie & Bonne, 2014).

Educators, policy makers, and stakeholders may use the findings of this study to inform discussions concerning integration of mobile learning into the curriculum to deliver technology-enhanced learning. Kearney, Burden and Rai (2015) asserted the need to investigate pedagogies that are relevant for mobile learning to inform teacher practice, policy makers, curriculum developers, teachers, and administrators.

### 3. Methodology

Mixed-methods approach will be used to gather quantitative and qualitative data. The study entails four case studies of one year ITE programs where graduate entrants have enrolled to gain qualified teacher status in New Zealand. These four ITE programs offered within the institution will be compared to explore how mobile technologies are used to facilitate teaching in innovative learning environments. A multiple-case study design will be used to compare and contrast the four ITE programs, hence allow a cross-case comparison of the four cases (Yin, 2014).

The target population for the study is teacher educators and preservice teachers in the College of Education within one university in New Zealand. A purposive sampling strategy will be used to select four teacher educators who teach in more than one ITE program and have used and implemented mobile technologies to facilitate teaching and learning. All the preservice teachers enrolled in the four programs will be invited to participate in the study. According to Creswell (2013) in purposive sampling, participants are selected to be included in the sample because “they can purposefully inform an understanding of the research problem and central phenomenon in the study” (p.156). The researcher does not intend to generalize the findings of the study beyond the research context.

This study will utilize semi-structured open-ended interview, observation, online survey questionnaire, and review of documents to collect data. The researcher has formulated open-ended interview questions outlining mobile learning theory (Kearney et al., 2015). Four teacher educators will be interviewed to get an in-depth understanding of how they have been using mobile technologies to prepare preservice teachers for classroom teaching. These teacher educators will also be invited to volunteer an opportunity for the researcher to observe their teaching. Classroom observation will be conducted using an informal observation protocol to gather illustrations of the use of mobile technologies. Field notes will be taken, particularly when observed behaviors do not fall within the protocol. A survey instrument developed and validated by Kearney et al. (2015) guided the design of the online survey to suit the context of the study. Ten items in the survey were adapted from O'Bannon and Thomas (2015) who examined preservice teachers' perceptions about useful mobile phone features for school-related work. All the preservice teachers enrolled in the four ITE programs will be invited to complete the survey. Relevant existing documents from the programs will be reviewed to contribute to triangulation of the data.

Qualitative data and quantitative data will be read and organized for analysis to answer the research questions. This study will employ a theory driven approach to develop the codes and the themes (Boyatzis, 1998). Qualitative data will be coded under the three significant features of collaboration, personalization and authenticity (Kearney et al., 2012). Through content analysis the codes will be condensed into related themes using coding scheme, and grouping related themes into patterns (Creswell, 2013). Themes will include items related to the research questions. SPSS will be used to analyze quantitative data under the three pedagogical features. The findings of the study will be displayed in tables, charts, and figures.

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### References

- Ally, M., Grimus, M., & Ebner, M. (2014). Preparing teachers for a mobile world, to improve access to education. *Prospects*, 44(1), 43-59. doi:10.1007/s11125-014-9293-2
- Baran, E. (2014). A review of research on mobile learning in teacher education. *Educational Technology & Society*, 17(4), 17-32.
- Boyatzis, R. E. (1998). *Thematic analysis: Coding as a process for transforming qualitative information*. Thousand Oaks, CA: Sage Publications.

- Burden, K., & Hopkins, P. (2016). Barriers and challenges facing pre-service teachers use of mobile technologies for teaching and learning. *International Journal of Mobile and Blended Learning (IJMBL)*, 8(2), 1-20. doi:10.4018/IJMBL.2016040101
- Burke, D. M., & Foulger, T. S. (2014). Mobile learning in teacher education: Insight from four programs that embraced change. *Journal of Digital Learning in Teacher Education*, 30(4), 112-120. doi:10.1080/21532974.2014.927208
- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. (3rd ed.). SAGE Publications, Inc.
- Darling-Hammond, L. (2012). *Powerful teacher education: Lessons from exemplary programs*. New York: John Wiley & Sons.
- Douch R., Savill-Smith C., Parker G. & Attewell J. (2010). Work-based and vocational mobile learning: Making IT work. London, LSN. Retrieved from <http://issuu.com/steveb123/docs/100186>
- Kearney, M., Burden, K., & Rai, T. (2015). Investigating teachers' adoption of signature pedagogies. *Computers & Education*, 80, 48–57. doi:10.1016/j.compedu.2014.08.009
- Kearney, M., Schuck, S., Burden, K., & Aubusson, P. (2012). Viewing mobile learning from a pedagogical perspective. *Research in Learning Technology*, 20. doi:<http://dx.doi.org/10.3402/rlt.v20i0.14406>
- O'Bannon, B., & Thomas, K. (2015). Mobile phones in the classroom: Preservice teachers answer the call. *Computers & Education*, 85, 110-122. doi:10.1016/j.compedu.2015.02.010
- Phelan, K. (2017). *Teacher educators' pedagogical practices for mobile learning* (Order No. 10256843). Available from ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection. (1877995174).
- West, M. (2012). *Mobile learning for teachers: Global themes*. UNESCO Working Paper Series on Mobile Learning. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0021/002164/216452e.pdf>
- Wylie, C., & Bonne, L. (2014). *Primary and intermediate schools in 2013. Main findings from the NZCER national survey*. Wellington: NZCER.
- Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). Los Angeles: Sage.