Mobile learning in early childhood education: A school-university partnership model

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Chapter 9 Conclusion and Recommendations

9.1 Introduction

The final chapter of the thesis summarises the key findings from the research questions and offers implications and suggestions for future research. The purpose of this research was to explore the implementation of mLearning in early childhood education (ECE) at two public schools in the metropolitan area of Perth, Western Australia through the lens of school-university partnerships. A collective case study methodology was chosen for this longitudinal research which took place over a three-year period. This study prioritised qualitative methods to generate insights about relationships within contexts on multiple levels, but at the same time captured quantitative data regarding the participants and cases studied. Data were collected using surveys, individual interviews, small focus group interviews, field observations and school websites. The qualitative data were analysed by open, axial and selective coding using NVivo software as a coding tool. Quantitative data was collected using Survey Monkey and from school and University websites.

The research examined benefits and challenges of mLearning in two school-university partnerships using the following two research questions:

1. What are the benefits and challenges for schools and the University of adopting mLearning in ECE?
2. What are the impacts of mLearning implementation in schools on school-university partnerships?
The following five considerations were used to guide the study:

1. The level of engagement that children exhibited in working with mLearning.
2. How the partnership contributed to the practising teachers’ technological knowledge.
3. How the authentic mLearning experiences contributed to PSTs’ learning.
4. How synergy between practising teachers and PSTs helped each other to master mLearning for the benefit of student learning.
5. How the partnership contributed to the school and University communities.

The implications of the findings are considered under each of these five considerations.

9.2 The level of engagement that children exhibited in working with mLearning.

Findings from the practising teachers and PSTs indicated that children were motivated to participate in activities that included mLearning. When using mLearning tools, children were noted by participants to be engaged. mLearning tools were not found to distract children from learning. In this research, children were observed engaging with mLearning tools by practising teachers, PSTs, school leaders, University staff and parents and carers. Observers commented that the level of engagement exhibited by the children was high and that they were surprised how engaged and on task children were when using mLearning. The implication is that mLearning is engaging to children and when used in a developmentally appropriate manner, it is a tool that can enhance children’s learning.

9.2.1 How the partnership contributed to the practising teachers’ technological knowledge.

The mLearning partnership enabled the participating teachers to see first-hand, developmentally appropriate use of mLearning in the early childhood setting and develop their personal technological knowledge. The view of the University staff was that most of the participating teachers had low levels of technological knowledge and limited knowledge about integrating mLearning into their teaching and learning programs. Some of the teachers
rated their personal levels of technological knowledge highly but this translated into knowledge about hardware and software rather than how to integrate mLearning in the classroom to transform and enhance children’s learning. As a result of engaging in the partnership the participating teachers all stated that their levels of technological knowledge and confidence using mLearning in the classroom increased. The gain in technological knowledge of the individual teachers varied depending upon the amount of personal time they were prepared to dedicate to mLearning. The implication of this finding is that teachers need to be selected to participate in an intervention such as the one in this research, and expected to share their new knowledge amongst peers. Participating teachers need to become technological leaders in their schools so that they can help colleagues understand how mLearning can be used to transform learning. Without specific professional development, many teachers do not know what they do not know and use mLearning in limited ways, if at all.

9.2.2 How the authentic mLearning experiences contributed to PSTs’ learning.

According to all PSTs and University staff the mLearning experiences provided a rich learning experience for the PSTs. The level of effort the authentic PSTs put into their lessons exceeded that of the peer group. The PSTs gained practical experience in a real classroom and they gained real knowledge about integrating mLearning into their lessons. PSTs also had the opportunity to observe experienced early childhood teachers model tasks such as grouping children and rotating children from one group to another. The PSTs gained pedagogical experience and valuable feedback from the practising teachers on the lessons they delivered. The implication of this finding was that PSTs did not seem able to consider the needs of real children unless they were actually presenting a lesson to real children. The authentic teaching experience provided PSTs with an opportunity to use mLearning in the classroom with the support of University staff. The experience changed the views of many
PSTs about the use of mLearning in early childhood education because they saw first-hand that the children were engaged, motivated and learning. The PSTs had the potential to start an early childhood teaching career with real-world knowledge about using mLearning in the classroom setting.

9.2.3 How synergy between practising teachers and PSTs helped each other to master mLearning for the benefit of student learning.

For a partnership to be successful and ongoing, there have to be benefits for both partners. The synergy between the practising teachers and PSTs was an example of a mutually beneficial relationship. The teachers had the opportunity to observe mLearning being used purposely in the classroom and to observe the children in their classes whilst the PSTs were teaching. Most of the teachers sat with groups of PSTs and children, taking notes and asking many questions about the mLearning resources used. The PSTs had the support and guidance of the teachers to assist with class management if required. The meeting of the practising teachers and PSTs prior to the school visits made the experience more meaningful for both teacher groups. The PSTs gained knowledge about the children they would be teaching and the content the teacher wanted them to deliver. The practising teachers were reminded that the PSTs were only in the second year of a four-year degree. The practising teachers were able to provide a supportive environment for the PSTs having met them and gained an understanding of their prior knowledge and experience. The implication of this finding is that practising teachers and PSTs can learn from each other and partnerships between schools and universities provide valuable two-way learning opportunities.

9.2.4 How the partnership contributed to the school and University communities.

For the partnerships to be successful, they had to involve the school and University communities. In the schools, communities included parents and carers, staff not directly involved in the research and school Principals. School Principals were responsible for making
decisions regarding the purchase and use of mLearning resources. Staff, parents, and carers were members of the school communities with the ability to influence school Principals about future directions of the schools. Both of the participating schools became Independent Public Schools (IPS) in the final year, so the Principals needed the support of their school boards and Parents & Citizens (P & C) Associations to make changes and purchase mLearning resources. Both schools used business plans created by school boards to drive the implementation of mLearning. The success of the partnership at the classroom level was high but did not lead to significant changes in either school until a supportive Principal was appointed. Supportive principals selected staff to participate in the partnership so that these teachers could become technological leaders in their schools and share acquired knowledge with colleagues. The support of the wider school community enabled the mLearning partnerships to grow.

The partnerships took three years to develop to the point where they were self-sustaining and equally valued by the schools and the University. The themes discussed as ‘links in a chain’ in the previous chapter provide readers with key components that are vital for establishing school-university partnerships. The three-year duration of the research enabled the partnerships to develop and spread further than the classrooms directly involved. The schools contributed to the direction of the partnerships in the final year, but in the first two years, the direction and activities of the partnerships were directed mainly by the University. The research demonstrated that schools and universities could work together to implement mLearning in early childhood education. In the final year when the PSTs presented an mLearning workshop to parents, the partnership became a collaborative community partnership between the School B and the University. The idea was instigated by the school, delivered by the PSTs and mutually beneficial.
Early in the research, the researcher thought that the participating teachers would become technological leaders in their schools and share new knowledge with colleagues and school communities. The teachers did not become technological leaders during the research period, possibly because the school leadership did not realise the potential of the partnership or the teachers were not passionate enough to share new knowledge.

The mLearning partnerships led to the purchase of mLearning resources including iPads, Bee-Bots, and digital microscopes. These mLearning resources were used by PSTs and School of Education (SoE) staff involved in the partnerships and also by other SoE staff. The digital microscopes and Bee-Bots were used by SoE staff who had participated in the partnership in other teaching units. SoE staff who were not associated with the partnership used iPads but no other mLearning resource. Without direct exposure or knowledge about new technologies SoE teachers did not explore new technologies.

The implications of these findings are that the benefits of partnerships can go beyond the initial goals and bring additional benefits to both partners. For this to happen supportive leadership is necessary. Regular contact between partners is necessary to maintain the relationships developed and provide opportunities for partners to collaborate on future ideas.

9.3 **Summary: Benefits of mLearning in early childhood education**

The findings of this research support current literature that mLearning is beneficial to children’s learning (Boyce et al., 2014; Ciampa, 2014; Chiong et al., 2012). The fact that mLearning is beneficial to children’s learning and a requirement of many Australian government policies means that schools, teachers, and parents need to work together to ensure that children have the opportunities to engage in mLearning. Implementing mLearning in early childhood education can be beneficial for the following reasons:

- Enhanced learning experiences for children.
• mLearning supports the Australian Digital Technologies curriculum.

• mLearning can be used to support the Early Years Learning Framework (EYLF) (DEEWR, 2012) that sees Information and Communications Technology (ICT) as part of the multi-literacies environment that children will need, for full participation in the 21st century.

• mLearning can be used to support the National Professional Standards for Teachers in Australia. ICT is embedded into the standards (AITSL, 2012).

• ICT competence is embedded into the general capabilities of the Australian Curriculum (ACARA, 2013) and indicates that children at all stages need to use ICT effectively to investigate, create, and communicate across all learning areas.

• mLearning is well suited to early childhood education and allows children to investigate, create and communicate.

• Children appear to be motivated to engage in mLearning.

The implication of the benefits of mLearning for children, together with the importance placed on mLearning by educational policy documents, means that teachers will need to up-skill in order to gain the necessary technological knowledge for effective implementation of mLearning. Teachers need time, support and professional development to gain the skills to use mLearning in developmentally appropriate ways to enhance children’s learning. Partnerships between schools and universities provide an affordable way for teachers to gain technological knowledge.

9.4 Summary: Challenges to mLearning in early childhood education

The challenges to mLearning in early childhood education are related to a lack of time for teachers to explore mLearning resources and learn how to implement these mLearning
resources into teaching programs. Time is needed for teachers to attend professional development modules, research new mLearning resources, as well as, experiment with and manage mLearning resources. The training of teachers in the use of mLearning needs to be supported by school leadership. Teachers also need to have a positive disposition toward mLearning and be willing and open to new ideas. The key challenges comprise:

- Lack of opportunities for teacher professional development.
- Lack of teacher technological knowledge.
- Lack of mLearning resources in schools.
- Lack of support for managing and maintaining mLearning resources.

9.5 School-University partnership

The partnerships in this research had a specific purpose (mLearning implementation in early childhood education). There were benefits for the schools and the University in terms of schools gaining technological knowledge and PSTs gaining valuable teaching experience. As the relationships within the partnerships grew the partnerships expanded beyond mLearning. The key factors for establishing partnerships are:

- Partnerships need time to develop.
- Partnerships need to be mutually beneficial.

The challenges for the University were timetabling units to fit in with the school day, ensuring that PSTs could travel from the University to the schools to teach without affecting learning within other units, and a lack of mLearning resources and staff technological knowledge to model mLearning across all units within degree courses. Another challenge for both schools and the University was addressing negative dispositions towards mLearning in early childhood education. If opportunities are not provided for members of the school and University communities to see first-hand the benefits of mLearning, then negative
dispositions will remain. An implication of this finding was that despite the need to include members of the school and University communities, in reality, it was difficult getting parents, carers and teachers to attend workshops after school hours. A supportive principal and ongoing commitment to try different approaches to entice community engagement were valuable. An area of this research that requires further investigation is the engagement of the SoE staff in mLearning implementation across a range of teaching units.

9.6 Recommendations

Employing technological leaders in schools and universities is an area worthy of future research. Technology in education is in a state of rapid change, with educators struggling to keep up with best practices (Delgado, 2015). Tracking the work of technological coaches in schools and universities who are trying to establish best practice would be worthwhile. Further recommendations include:

- Informing parents and carers about the educational use of new mLearning technologies.
- Providing information such as a handbook for participating teachers and school leaders so they know what to expect and how they can contribute to the partnership.
- School leaders selecting teachers prepared to engage in the partnership and share new knowledge.
- Allowing time for partnerships to develop.
- Schools and universities in partnerships need to be flexible to ensure that the partnership is mutually beneficial.
- Universities providing on-going support and professional learning opportunities for teachers, teacher educators and pre-service teachers.
• Continued authentic learning experiences for both practising and pre-service teachers in schools.

• Tracking alumni participating pre-service and practising teachers to see how they use mLearning following the authentic mLearning experiences.

• Supporting participating pre-service and practising teachers to become technology leaders and recording their developmental journeys.

9.7 Conclusion

Further research would be to track how specific teachers in a school or university use mLearning in the classroom over an extended period. In particular, efforts could be focused on how teachers and students use mLearning in different learning areas and the type of use of the mLearning tool. Furthermore, teacher’s use of mLearning and its effect on mLearning in a school or university would be an area for additional research.

9.8 Final comments and personal impact statement

The three-year research has yielded many positive outcomes in terms of children’s learning. As schools increase spending on mLearning resources, it is important that evidence-based research is used to justify such spending and ensure that the potential benefits to children’s learning are maximised.

This project had a considerable impact on me as the researcher. I observed many PSTs delivering well thought out lessons that used mLearning to enhance the learning outcomes for their students. These lessons impressed the classroom teachers, school leaders and other SoE staff. I was surprised at the difference in the standard of the lessons produced
by the PSTs in the peer and authentic groups. The authentic lessons encouraged the PSTs to go beyond their normal efforts and thus, I believe, helped them gain much more from the partnership experience. I trust that they will be able to go forward in their teaching careers better informed about how to use mLearning as a creative tool for enhancing children’s learning.

It was a privilege observing PSTs in the second year of a four-year degree delivering professional development to parents and carers. I witnessed how parents’ and carers’ dispositions towards mLearning changed as they gained an understanding about mLearning, being used in a developmentally appropriate manner, and how it can be harnessed as a tool to enhance children’s learning. It was heart-warming to be part of the shared excitement between the PSTs, teachers, leaders, parents and carers and children who participated in the authentic mLearning experiences involved in this research.