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

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Chapter 5 Classroom Level Results - The Practising Teachers

5.1 Introduction

Chapters 4 and 5 contain the results gathered at the classroom level, namely from the pre-service and practising teachers. This was undertaken through observations of authentic mLearning teaching experiences in the classrooms, focus groups and interviews. Chapter 4 contains the results pertaining to the PSTs, and this chapter contains the results relating to the practising teachers associated with the following three considerations:

1. The level of engagement that children exhibited in working with mLearning technologies.
2. How the synergy between pre-service and practising teachers helped each to master mLearning for the benefit of student learning.
3. How the partnership contributed to the practising teachers’ technological knowledge.

5.2 School participants’ experience of the mLearning partnership

The early childhood teachers involved at School A were Angel, Jessica, Karen, and Kelly. Over the three years of the project, the Principals of School A were Lara, Sam, and Tim. The early childhood teachers at School B were Louise and Rachel. There were three principals over the three-year period at School B, these were Gloria, Sam and Anna. A brief description of the participants is presented.

5.2.1 School A.

Jessica was an experienced early childhood teacher who had been at School A for 12 years and was also the literacy coordinator. She was regarded as the early childhood team leader. At the start of the partnership, Jessica had limited experience of mLearning, but she
possessed a hunger for learning more and frequently asked questions. She attended an initial ICT workshop at the University alongside the PSTs, who would later visit her class in 2013. She enjoyed the session and asked many questions that demonstrated her lack of technological knowledge such as: “What is an URL?” and “What is a wiki?” (Jessica, 2013).

When invited to attend the whole ICT unit as an intensive course run in the school holidays at the beginning of 2014, Jessica was the only teacher in the partnership who was able to attend all sessions, which she did. Jessica talked about her school’s new website and the fact that with the assistance of the ICT lecturer, Victoria, she had created a blog. Jessica intended to use her blog to share classroom information in the future. She was highly supportive of the partnership and encouraged parents to attend parent mLearning workshops by distributing letters and requesting replies. The researcher and School of Education’s (SoE) ICT coordinator were invited to speak about the mLearning partnership at the initial meeting of parents in Jessica’s class in 2014. Jessica was a participant from 2013-2014. Jessica applied for positions outside School A, and in 2014, she successfully gained a position outside School A, which she commenced at the start of 2015.

Kelly, the Year 1/2 teacher at School A, was a mature age graduate and newly appointed to the school in 2013. Kelly had a prior engagement to attend a graduate professional development workshop during one of the scheduled PST visits, which provided her with a dilemma. Her colleague stepped into her class rather than a relief teacher, which had initially been proposed by the school.

Kelly was enthusiastic about being involved in the research and provided the PSTs with direction about the content that she wanted them to plan for her class. She provided the PSTs with good pedagogical feedback. She attended, in her own time, a parent workshop run by the University and professed that she enjoyed the session. Kelly purchased her first iPhone at the start of 2013 and shortly afterwards an iPad. She was supportive of the partnership and
enthusiastic about mLearning in early childhood education. Kelly participated in the research in 2013 but, as she was on a fixed term contract, lost her position when School A had to reduce staff numbers in 2014.

Angel was an experienced teacher with more than 25 years of teaching experience, half of which was in early years’ education. Angel joined the research in 2014 with her Year 1 class although she had provided relief for Kelly for one of the PST visits in 2013. After the relief lesson, Angel stated that she was impressed with the lessons delivered by the PSTs and the PSTs were welcome in her class anytime. Angel attended a parent workshop at School A in her planning time and asked her colleagues for more information about the partnership in 2013. At the beginning of 2014, Angel volunteered and was subsequently involved in the research in 2014 and 2015.

Angel used an iPhone, a laptop, and desktop computer and expressed interest in the iPad. In her previous school (15 years earlier), she had been a “computer person” and stated that she liked technology. Angel indicated that she used a variety of programs such as Word, Excel, Paint, and PowerPoint. Angel stated that she was against computer games in the classroom. Angel’s comments from interviews included:

I do not have an iPad, but I do want to get one. (Angel, 2014)

I am comfortable on the computer but not with the iPad yet. It would be lovely to have a set of six iPads; that would be great. (Angel, 2014)

I am using Book Creator with my class now (Angel, 2015)

School A had three iPads purchased in 2014 for the children with special needs and as one of these children was in Angel’s classroom, she had access to one iPad in 2014. When questioned about the use of the iPad and who selected and uploaded the apps she was not certain. Angel used her iPhone to take photographs and videos of the children in her class.
The children enjoyed seeing the multimedia, and it proved useful to show parents what the class had been doing. Angel stated that she would like to use more mLearning in her teaching, but a lack of mLearning resources prevented her from doing so. The University offered to lend a set of iPads to Angel, but she did not follow up on the offer. Despite the fact that Angel did not borrow iPads or use the one available in her class, she did embrace iPads when School A purchased a set and used them in ways demonstrated by the PSTs. Angel’s actions illustrated that she was not prepared to go out of her way to use mLearning, but when it was readily available, she did use it.

In the final year of the research, Jessica was replaced by Karen in the pre-primary (PP) class. Karen came to School A as a permanent member of staff. She was enthusiastic about being involved in the partnership as shown by her comment:

I realise that ICT is here to stay so we need to embrace it, that is why I had my hand up for this partnership. I am ready to go and upskill as I think it is important for children. I feel privileged to have this opportunity because I believe we need to use technology based on research and best practice, and I think these things are coming from the University. (Karen, 2015)

Karen’s views are consistent with literature indicating that university partners are passive recipients of scholarship (Brown, Shephard, Warren, Hesson, & Fleming, 2016). At the start of the year, Karen’s technological knowledge was limited. She was not sure if the tablet in her classroom was an iPad or another type of tablet and used it only for taking photographs of children’s work. During the handover that Karen had completed with Jessica the previous year, Karen saw some apps, useful websites and expressed her interest in attending the ICT intensive unit that Jessica had attended. Karen was unaware how to put apps on the iPad and did not have an iTunes account. Karen was very excited to be part of the partnership as illustrated:
I am ready to have a go. I am open to it and would love to learn. I am on the edge as at my age, when you are over 50 it is a big confidence thing as you do not want to look like a fool. You do not want to admit that you do not know much. (Karen, 2015)

Tim, the Principal of School A, was new to the school in 2013. School A was Tim’s first substantive position as a Principal although he had held a Deputy Principal position at a larger school previously. Tim had no forewarning about the partnership that had been set up by his predecessor. Tim was cautious about the use of technology, as he had an adverse experience in a previous school. He said that there was much time and money wasted with no obvious benefits to children’s learning. He stated that he was in favour of mLearning in early childhood education but that the school had no money to implement it, as demonstrated by the comment: “I inherited a “broke” school” (Tim, 2013).

At the start of the research, Tim commented that the staff lacked technological knowledge, the school had no mLearning resources, and the Parents and Citizens’ (P & C) Association lacked engagement for the purpose of fundraising. Tim stated that he wanted to establish relationships with universities, although his initial priorities at School A, were organising the school and staff, and upgrading outdated resources. He did not view the research in action until he was invited by the ICT coordinator to visit a classroom. In the first year at School A, Tim upgraded the school’s website, introduced e-newsletters and applied for an iPad grant.

Tim was keen to learn more about the research and came to the University and attended part of an ICT tutorial with the PSTs, who would later come to the school. He was not proactive in communications with the University and did not take up offers of professional development for the school through the partnership model. He encouraged the teachers to liaise directly with the University. Tim moved to another school in the middle of 2014 as acting Principal. He maintained the position of Principal at School A but indicated to
the replacement that he was seeking a permanent promotion and, if successful, would not be returning. Lara replaced Tim in the middle of 2014, and towards the end of 2014 Tim gained a permanent promotion and did not return to School A.

Lara had sixteen years’ experience as a school Principal and held the substantive Principal role at another school. Lara’s position at School A was that of acting Principal for six months until a permanent replacement commenced. Lara indicated that School A was much closer to her home, and she was pleased to reduce her travel time. Lara had no knowledge about the mLearning partnership or the details of the iPads that were being purchased by the P & C Association, as reflected by her comment: “Well, that was before my time” (Lara, 2014).

During Lara’s short time at the school, she did not engage in the partnership, possibly because she had little knowledge of it and considered her position at School A as short term. However, Lara’s favourable view of mLearning in early childhood education is illustrated by her comment:

I am all for it. Recently I had a debate with the parents at the pre-primary I have just come from [at a previous school] where they wanted to make it screen-free, so I had to show them very clear links in the curriculum where it was important for children to have access to iPads and computers. (Lara, 2014)

Sam became Principal of School A in 2015 coinciding with the school gaining Independent Public School (IPS) status. Sam was a relatively young Principal who started his career in education as an education assistant, and then qualified as a teacher and was promoted to principal in a short time. Sam had been a Principal for the last three years at another school. Sam had a very young family and was particularly passionate about early childhood education. Sam owned and used an iPhone, iPad, MacBook and iPod at home and a desktop computer at work. He had a range of educational apps on his iPad for his
three-year-old child but did not use educational apps himself but was ready to bring mLearning to School A as illustrated by the following comment:

I would like to see a heightened use of mLearning. That starts with a simple purchase of some iPads for the school. I’d like to see a class set, that to me is a goal for the very near future. (Sam, 2015)

5.2.2 School B.

The teachers Louise and Rachel at School B remained in the partnership for the duration of the research. There was a new Principal each year. A description of the participants at School B is presented.

Louise was an experienced early childhood teacher who was passionate and enthusiastic about using mLearning in her pre-primary class, where she had been teaching for three years. She used free apps that directly supported the learning in her classroom as illustrated by her comment “There are times and places for games, and my tight schedule is not one of them” (Louise, 2013).

Louise had presented professional development on mLearning to colleagues and frequently helped fellow staff members. At the start of the partnership, Louise was the “go-to” person in her school for help with the iPads. She attended an initial ICT workshop at the University in 2013 alongside the PSTs, who would later come to her class. She said that the session was highly beneficial and would like to have attended more, but the cost of teacher relief made this impossible. Louise stated: “ICT needs to be part of the repertoire of every teacher, not just those with passion. It does take time, and teachers do not have much of that” (Louise, 2013).
Louise commented that she continuously explored new apps that supported and extended her professional development. Louise was working towards a promotion and was keen to take on extra responsibilities. She participated in the research from 2013-2015. At the start of 2014, she stated that she was only interested in free apps and wanted the PSTs to use some good free apps.

Ideally, I’d like the students [PSTs] to be bringing in things that we do not have access to in the school. We have got iPads so for this I’d like to see students sharing free apps with us, ones that they have found and explored themselves. (Louise, 2014)

Louise’s comment showed a lack of understanding about the purpose of the partnership which was to use mLearning as a tool to support the curriculum, rather than the focus of a lesson. Louise became a member of the school council in 2014 and discussed the partnership at meetings and, as a result, three parent workshops were organized in 2014. In 2014, Louise was no longer the most technically proficient person at School B because the new Principal was experienced and knowledgeable about technology integration in education.

Rachel was an experienced teacher who was new to School B in 2013. She had limited experience with mLearning in the classroom and said that she used technology as a teacher tool. She was enthusiastic about mLearning but complained about being time poor as shown by the comment:

I am limited by getting everything done in the classroom, ideas, and professional learning. I am only limited by what I can get done, cost, just knowing more about the things that you already have and no lack of interest. I see it [mLearning] as the new way. (Rachel, 2013)
Rachel attended an ICT tutorial at the University in 2013 alongside the PSTs, who would later visit her class and said that she enjoyed it, her confidence level increased, and she learnt a lot. Her “light globe” moment was when she realised that she had been using new technologies in old ways and that there were new pedagogies to match new technologies. When invited to attend the ICT intensive in the school holidays her only question was whether she would be required to complete assignments. Rachel did not attend the intensive course but participated in the research from 2013-2015. Her confidence grew using technology which helped her to change her style of teaching as shown: “I have traditionally been more teacher-centred, but I am trying to shift towards more student-centred ways” (Rachel, 2015).

In 2015, Rachel extended her partnership with the University when she gained part-time employment as a practicum supervisor. Rachel’s participation in the partnership enabled her to make the necessary contacts which enabled her to gain this part-time employment at the University. Rachel left School B at the end of 2015 to take a position at another school but made contact with the University in 2016 to offer practicum places for PSTs and expressed interest in an mLearning partnership at her new school.

Brenda, the Deputy Principal, and Gloria, the Principal of School B attended a meeting with the researcher at the end of 2013. At the meeting, Gloria announced that she was leaving School B and that there would be a new Principal in 2014. At that point, Brenda intended to job share with Rachel in the Year 2/3 class on the days that the PSTs would visit in 2014. Brenda stated that she was excited about being part of the research and was proactive in ensuring that the PST visits ran smoothly as illustrated by her comments:

Thanks so much for coming out the other day. I am very excited along with Louise to know that our partnership will continue into next year. (Brenda, 2013)

I did want to let you know that I am working on getting Louise, and I there [to the University] next week but it is proving to be problematic so close to the
commencement of the year. Is there another option that we could do it another way? (Brenda, 2014)

I was wondering if you are at the point where you want to know what content we would like covered. (Brenda, 2014)

At the start of 2014 last minute changes at School B meant that Brenda was not directly involved in the research as Rachel was in the classroom on the days that the PSTs visited. Brenda acted as a point of contact between the University and the teachers until a relationship was established with the new Principal. Brenda organised relief teachers so that the teachers could come to the University and meet the PSTs at the beginning of 2014 and 2015.

Gloria, the Principal of School B, had been at the school for three years as Principal and was enthusiastic about the research at the beginning of the year. Gloria believed in mLearning in early childhood education claiming early on in the partnership: “We need to embrace it” (Gloria, 2013).

When she had viewed the research in action she stated:

As the year went by, I think the interactions in the classrooms were good. (Gloria, 2013)

The partnership encouraged the teachers and can only get better with time. (Gloria, 2013)

Gloria described her staff as variable in technological abilities but was working towards the school’s goals in implementing mLearning. Gloria reported that the use of mLearning in the classrooms was steadily increasing although used in variable amounts by different members of staff. She highlighted that the music teacher used the GarageBand app
along with the upper primary teacher who used the iMovie app to make films in class. She rated her technological skills as about the same as those of her staff. Gloria was promoted and left School B at the end of 2013. When Gloria informed the researcher that she was leaving School B at the end of 2013, she said on two occasions that the University was welcome to extend the research to her new school which illustrated the value she placed in the mLearning partnership.

Gloria made use of the partnership with the University to access professional learning for her staff. In the first year, Gloria requested two professional development sessions from the University, a whole staff professional development on iPads and an iPad professional development workshop for EAs from across the school’s network. The two sessions were well received by the participants.

Bo became acting Principal of School B in 2014, replacing Gloria. She had held a permanent position as a Deputy Principal at another primary school. Bo had 13 years of teaching experience and had taught all year levels from pre-primary upwards. She had been a Deputy Principal for six years at a large public school that had initiated a 1:1 laptop program for children from Years 3 to 7. Bo indicated that she used technology extensively: “It is a big part of my day” (Bo, 2014).

Bo set up a Principal’s blog to communicate with parents, a Google drive for document sharing and an online professional learning space where she housed videos and articles for use during professional development sessions. Each week Bo scheduled an hour of her time to look at educational sites on her Twitter account so that she could keep up to date. She said that her philosophy regarding mLearning had come about through a team approach to integrate technology at her previous school and declared: “mLearning is a tool and part of the repertoire of things that students can draw upon”. (Bo, 2014)
Bo had experience in a setting with significant ICT resources but was focused on quality teaching and ensuring that there was money for teacher professional development as well as mLearning tools. Bo talked about the gradual release model of professional development where teachers worked together guided by an expert to remodel lessons, taught the lessons and then came back together to review lessons. She stated:

If the learning is not good, then technology will not help. Good teaching is good learning and poor teaching with technology is just expensive learning. (Bo, 2014)

My goal from an ICT perspective [this year] was to ensure that our teachers understood that technology should be seen as a tool for learning rather than an outcome. (Bo, 2014)

Bo rated her technological knowledge as high and indicated that she had the skills necessary to assist staff. She described children as intuitive, engaged and motivated when using technology but lacked the ability to use technology in creative ways.

Anna commenced as Principal of School B in 2015 and indicated that she would be at School B for at least three years. She was an experienced principal with prior experience in an IPS. Anna owned an iPad and indicated that she has always been very involved and passionate about ICT as illustrated:

I have an honours degree in computer education. I live and breathe computer education. (Anna, 2015)

My previous school had 70 iPads (Anna, 2015)

I think ICT done well can develop thinking skills of children. (Anna, 2015)

Before becoming a Principal, Anna had an ICT support role in a school. That role involved working with teachers and helping them to integrate ICT purposefully.
There had been little information exchanged regarding the mLearning partnership between Anna and Bo, the previous Principal. Anna appeared very interested in the partnership and asked numerous questions about how the PST visits worked and how the parent workshops had gone in the previous years. Anna indicated that she wanted to up-skill staff and create a professional learning culture amongst the staff in the school.

5.3 What are the benefits and challenges of mLearning to practising teachers?

Practising teachers considered the impact of mLearning on the children. For educators to implement mLearning in early childhood classrooms, there must be clear benefits for children. Although no data was collected directly from children, the participants were asked about the children and were observed working with children.

5.3.1 School A.

This section contains findings relevant to engagement and motivation of children at School A and the benefits and challenges for the teachers at School A. The benefits are described along with the challenges. The benefits included increased technological knowledge and confidence using mLearning. The challenges included a lack of professional development, mLearning resources, and technical support. Findings relating to the development of the partnership with the teachers at School A are also included.

5.3.1.1 Engagement and motivation of children.

The practising teachers all made positive comments relating to the impact of mLearning on the children’s engagement. The teachers regarded the mLearning as enjoyable for the children and, in particular, those children who did not usually engage. Jessica, the pre-primary teacher at School A, stated that she enjoyed the PST visits and seeing how excited her class were when they saw the products that they had created with them. She
commented that the children were all motivated: “Even the boy with special needs engaged for the whole session; that was empowering” (Jessica, 2013).

Angel did not see any disadvantages to the partnership and stated that both she and the children benefited from the encounters with the PSTs:

It was nice for the children to have other adults [PSTs] supporting and guiding them. I think that was enjoyable and exciting for the children. (Angel, 2015)

I saw the children sharing ideas, so it was truly cooperative learning. (Angel, 2015)

It was good to see the children problem-solving. (Angel, 2015)

Anything that beeps, or moves or is remote control or can be recorded on, and you have them [the children] captured. (Angel, 2015)

These comments show that Angel believed that children were engaged and learned during the PST visits.

Karen stated that the children in her class associated computers with playing games so she was worried that if they were asked to use a specific app on an iPad, they may look for games and become distracted. In fact, the children were all highly engaged, and distraction was not a problem. Kelly saw one of the main benefits of the partnership for the children in her class was working in small groups with the PSTs. She felt that the children’s excitement and the potentially disruptive effect of extra bodies in the classroom were outweighed by the benefits.

After a session, with the PSTs the children were asked which activity they had enjoyed the most, and one boy said, “I liked the race” referring to a mathematical activity with the Bee-Bots. The boy was oblivious to the fact that he had taken part in a rich mathematics lesson where the class had used estimation skills to program Bee-Bots to travel between fixed points. Together, the following quotes from the early childhood teachers and
this boy provide an illustration into the level of engagement and enjoyment experienced by the participating children. The quotes show that the children were engaged using the technology, were motivated and had ownership of resources that they created.

They love it. It motivates some of the children who sit at the back of the group. They are motivated to take part so that they get a turn. (Jessica, 2013)

I think it absorbs the children. They really enjoy it, and they are more motivated. (Kelly, 2013)

The children got quite excited and switched on. (Angel, 2014)

The children were just awestruck; they were listening and engaged, and they were engaged during the mat session as well as in all the activities. Even the student whose second language is English and is having trouble settling. (Jessica, 2014)

I thought we might have an Oscar afternoon with the parents, presenting movie trailers and books that we have made. We have made two whole class movie trailers; we did Super School And Fairy Tale School at the beginning of the year, and all the kids were part of it. They were all involved, dressed up. They are so proud of it. They have amazing ownership of it. (Jessica, 2014)

I think they all engaged, and no one was off task when they were using technology. It was good for those children who are not academic and do not normally excel; it gave them a chance to shine. (Angel, 2015)

They [the children] are willing to have a go and are not worried about making mistakes with the iPads. (Angel, 2015)

I have witnessed the high level of engagement that children exhibit when using mLearning especially the boys, so that has strengthened my belief about embracing ICT in early childhood education. (Karen, 2015)

I saw the response of the children when your [University] students brought the Bee-Bots. They were engaged, motivated and excited. (Karen, 2015)

### 5.3.1.2 Increased technological knowledge and confidence using mLearning.

The early childhood teachers involved in this study had the opportunity to develop technological skills by observing the PSTs and engaging with them while they taught using the mLearning tools. Jessica, the pre-primary teacher, of all the teachers in the research, made the most of this opportunity. Jessica declared that as a result of the partnership her confidence
using mLearning had increased. She could not think of any disadvantages of having the PSTs visit her class. Angel gained some ideas from the PST visits which enabled her to think about how she would introduce the iPads into her teaching:

I am looking forward to using the iPads in the classroom. I see that most kids will be able to use them, but I want to use them in small groups as part of a rotation so I can assist the children. Maybe a parent helper will be useful. (Angel, 2015)

I am collecting apps at the moment. I want to use apps to make stories and movies. Letting them [children] hear each other will be fantastic then we can talk about it. (Angel, 2015)

Jessica stated that her newly acquired skills gained through the partnership prompted her to apply for new jobs. At the end of 2013, she was unsuccessful. At the end of 2014, Jessica secured a new job. The mLearning partnership gave Jessica increased knowledge and confidence that supported her to seek new challenges. Jessica used her newly acquired mLearning skills to create an iMovie with her class that she subsequently used at an interview which resulted in her leaving School A.

Karen was aware of her lack of technological knowledge and wanted to ensure that she used mLearning purposefully. When PSTs visited Karen’s class for the first time, Karen told the children that the PSTs were visiting to teach them about computers and used the term information and communications technologies. Karen’s actions demonstrated her lack of understanding of integrating mLearning into the curriculum. Karen planned to teach the children how to use iPads respectfully before they would be able to use them as learning tools.

Forty-seven comments were made by teachers and school leaders at School A regarding increased technological knowledge and confidence using mLearning. The comments showed that teachers increased their technological knowledge and confidence
using mLearning through interactions with the PSTs. Some examples of these comments are illustrated:

I rate my mLearning skill as about four out of five. It has absolutely gone up from last year. I am a lot more confident. (Jessica, 2014)

This year’s groups have shown me how to use mLearning for phonological awareness, which is a big thing for pre-primary. (Jessica, 2014)

That sight word app was fantastic. The kids loved all the activities. Thank you so much. (Karen, 2015)

It was a holistic experience and an example of two-way learning. I realised that you can adapt things so that they can be done with technology. (Karen, 2015)

Figure 5.1 illustrates how the technological knowledge of the participating teachers at School A changed as the partnership progressed. The comments made by the teachers indicate the effect of the mLearning partnership on the teacher’s technological knowledge.
Jessica stated that the ICT tutorial that she attended at the beginning of 2013 was a highlight and that she learnt a lot from it. Jessica provided the PSTs with excellent feedback and got totally immersed in the classroom activities. Jessica made several comments indicating that she had learnt about mLearning from the PST visits such as:

The sequencing activity was age appropriate, relevant and fun. I also liked the storyboard app and would use it in my class. (Jessica, 2013)

I have gained many ideas from these sessions, and I have realised that using ICT in the classroom is quite simple. (Jessica, 2013)

Wow, Book Creator is so easy to use and a great way for children to be involved in making a digital book. (Jessica, 2013)
I liked the seasons app. I will look at using that with my class. (Angel, 2014)

Such comments illustrated the synergy between the pre-service and practising teachers. The practising teachers learned by watching and engaging with PSTs. Jessica sent an email to the University after the PST visits thanking the PSTs. Jessica also requested a copy of the lesson that one group of PSTs did in her class and said:

I liked how I was able to ask the students [PST] a question, and they were all willing to help and give me advice. (Jessica, 2013)

I gained a lot of great ideas, and the children enjoyed the activities. (Jessica, 2014)

In the first year of the study, Jessica asked the PSTs to make digital books with her pre-primary class. Jessica later revealed that she looked at the English curriculum and saw that she had to design digital books with her pre-primary class and stated: “I thought this [creating digital books] is impossible” (Jessica, 2014). After she saw the PSTs making the digital books she went on to say: “Now I have found that it is quite easy to do, and we are doing it quite regularly, and the kids are in control of that” (Jessica, 2014).

The PSTs given the task of creating digital books had no idea how to go about this task. They were guided by the ICT lecturer and were easily able to share knowledge with Jessica perhaps because the skills were new. PSTs stated:

She [Jessica] sat down with the first group of children and me and was really into it. She was happy to ask for our help, and we got to explain stuff to her and in the end she said, this is wicked. (PST, FG, School A, 2013)

The teacher asked about the story app that we used and how we added the photos. (PST, FG, School A, 2013)
When asked about her beliefs regarding the use of mLearning in early childhood education and whether they had changed throughout the course of the research Jessica responded: “Yes, absolutely. I saw that it was so easy. The students were so friendly and explained how to use the program over the sessions” (Jessica, 2014). Kelly, the Year 1/2 teacher, said that the PST visits reinforced her beliefs regarding the importance of mLearning in early childhood education.

The technological knowledge and confidence of the teachers at School A increased as a result of the mLearning partnership. Jessica of all the teachers, gained the most technological knowledge because she was enthusiastic and prepared to commit time to maximize her learning opportunity. Kelly and Karen were also enthusiastic but remained in the partnership for only one year, so there were limited opportunities for them. Angel was in the partnership for two years, stated that she was enthusiastic but was not prepared to commit personal time, so the partnership between Angel and the University did not develop as fully as the partnership did with Jessica. The partnership provided an opportunity for the teachers to develop technological knowledge and confidence using mLearning but the teachers had to be prepared to be proactive and liaise with the University to optimize outcomes.

5.3.1.3 Lack of professional development.

In every interview, the teachers at School A made comments made about the lack of professional development opportunities. In the three years prior to the partnership, Jessica received no professional development in using ICT in the classroom. Jessica took up the University’s offer to come and work one-on-one with her. She spent time developing a blog and looking at IWB resources with the ICT lecturer, Victoria. Jessica was appreciative of Victoria providing non-threatening, friendly technological support. Kelly stated that it was not a lack of interest that prevented her from using mLearning in the classroom, and she was
keen to use more mLearning in the future. Kelly reported that her technological skills were held back through lack of practice.

Karen was an experienced classroom teacher and new to School A in the final year of the study. She was a firm believer in lifelong learning and wanted to up-skill herself so that she could integrate new technologies in the classroom:

I believe in lifelong learning, and part of that is embracing the new. My beliefs are that we need to embrace ICT. However, there is a lot to learn on the way to use it in an informed, positive and constructive way. (Karen, 2015)

To ensure that it [technology] is used correctly is the tricky bit for me. I think we are in transition, and that is always the case when you are teaching a new process. (Karen, 2015)

When we purchase apps for this age group, we need to be sure that they have a voice or music so that kids can operate with prompts but without the need to read. (Karen, 2015)

Time and competing pressures were key limiting factors for the teachers. Karen described how she was learning to use a software program for a non-verbal child in her class and was learning to connect the child’s ‘talker’ to the IWB. A speech therapist had been assisting her in this process, and she recognised that these new skills would complement the use of other technologies in the classroom:

I do not have the time at the moment as lots of new things are happening, so there is not the time to play. (Karen, 2015)

With that [learning about the talker] and the iPad professional development, I will eventually be able to marry the two. (Karen, 2015)

Jessica and Kelly also acknowledged time as a limiting factor:

What stops me from using technology in the classroom is knowing what to do, time and what is easy for the students to use. (Jessica, 2013)

There is a lack of time and staff training on mLearning. (Kelly, 2013)
In the first year of the study, the University invited the participating teachers to attend free professional development alongside the PSTs at the University. The cost of teacher relief meant that only one teacher from School A was able to attend one whole session. In subsequent years, the participating teachers were invited to attend free professional development in the school holidays and one teacher from School A, Jessica took up this offer in 2014. Karen expressed an interest in attending the ICT intensive in the school holidays but left School A unexpectedly in the middle of the final year of the project.

The findings revealed that the teachers wanted the opportunity to attend professional development on mLearning integration, but there was a lack of opportunities and time available.

5.3.1.4 Lack of mLearning resources and technical support.

Lack of mLearning resources in School A was a barrier to mLearning implementation. All the teacher and school leader participants at School A commented on the lack of mLearning resources. One benefit of the partnership was that the University was able to loan equipment to School A. Jessica borrowed a set of iPads on two occasions in the second year. When advised about opportunities to borrow equipment Karen indicated that towards the end of the second school term after the reports had been written would be a good time for her to borrow the Bee-Bots: “At the end of the term, I will be able to utilize them more effectively. I will think about that” (Karen, 2015).

Karen did not follow up and did not borrow mLearning resources from the University, possibly because of competing priorities and a lack of time. Angel also expressed interest in borrowing mLearning resources from the University but did not follow up on the offer.

Jessica said that she would like to use more mLearning in the future but felt that it was mLearning resources holding her back as well as learning how to use the mLearning
resources effectively. In the second year, Jessica requested to borrow a set of iPads from the University on two occasions, and each time borrowed a set of iPads for a week or two. Jessica also asked technical questions such as, how to project from her iPad to an IWB and how to share files with parents.

Kelly repeatedly said that the barriers were a lack of technical support and mLearning resources. Her whiteboard was not interactive for the first two terms, and when asked about this she stated: “Schools are busy places” (Kelly, 2013).

Kelly clearly saw the benefits of using mLearning and was not afraid of technology, but had limited opportunity to use technology in the classroom because she did not have any mLearning resources.

5.3.1.5 The partnership.

Despite the instability of the participants throughout the three-year research period, the partnership at School A grew. Initially, when Jessica visited the University and met the PSTs in the ICT tutorial, the researcher observed that she seemed quite nervous. On subsequent visits, Jessica appeared quite relaxed and comfortable with the PSTs, lecturers and her role in the partnership. Jessica commented that meeting the PSTs at the University was useful because she could see that they were a little overwhelmed. The opportunity for the PSTs to meet the teachers before visiting their classes enabled the PSTs to gain a better understanding of the children they would be teaching. The meeting also broke down the barriers between the practising teachers and PSTs so that on successive visits both commented that they were more relaxed.

In the first and second years of the study, Jessica was a key participant at School A. When Jessica left at the end of the second year there were concerns about the partnership. The University lost the key participant in Jessica and gained a new Principal; Sam who
commenced in 2015. In the final year, Sam became the key participant at School A. Sam was enthusiastic about mLearning and the partnership with the University. This enthusiasm was demonstrated by Sam observing the research in action during the first PST visit and then ordering a set of iPads for School A. Sam also invited a University representative to be part of the new school board. The stability of the University staff enabled the lessons in the final year to run well as University staff were familiar with the school setting and the new Principal was supportive of the partnership.

The benefits and challenges for the participating teachers are summarized in Figure 5.2. The University staff remained constant and improved the structure of the PST visits. It became much easier for the University staff to manage the additional stress involved with overseeing PSTs teach lessons as guests in a local school.
Figure 5.2. The benefits and challenges for the participating teachers at School A.
5.3.2 School B.

This section contains the findings associated with engaging learning experiences for the children at School B and the benefits and challenges for the participating teachers. The benefits included increased technological knowledge and confidence using mLearning and the opportunity to borrow mLearning resources. The challenges were a lack of mLearning resources and technical support. The partnership challenges between the teachers at School B and the University are presented.

5.3.2.1 Engaging learning experiences for children.

Evidence that the partnership created positive learning outcomes for the children at School B is supported by the 43 NVivo coded items. NVivo, a qualitative data software tool, was used to store and code data including focus group transcripts and field observations.

The presence of the PSTs in the classrooms enabled the children to be fully supported and guided when introduced to new technologies. The efforts the PSTs took to create interesting dynamic lessons is illustrated by the following statements made by the teachers:

It was great for the children to have the experience working with adults and the technology. (Louise, 2014)

The digital microscopes were awesome; the children really responded to using them and discovering answers themselves. (Rachel, 2014)

For the children, it is all beneficial. Your students go above and beyond to plan exciting, fun cross-curricular exciting sessions. They work well with the children. (Louise, 2015)

The above comments also support the findings reported by the University academics that there was a vast difference in the standard of the presentation between the authentic and peer groups. No peer group PST appeared to have gone ‘above and beyond’ whereas many of the authentic PSTs produced lessons that were beyond expectations. The teachers and
children enjoyed the lessons that the PSTs delivered. The teachers indicated that the children learnt from these lessons as shown by the following comments:

- Fantastic ideas and activities for Anzac day. The students have done the basics in the past so to investigate individual Anzacs is great. (Rachel, 2015)
- The children get very excited when we use the iPads. They love the independence and are motivated to do research. (Rachel, 2015)
- The children love watching their Anzac videos and are constantly referring to their characters. It was a meaningful learning experience, and the children have learnt. (Rachel, 2015)
- The children in my class fully engaged and had the opportunity to do something that I had not done with them during the PST visits. (Louise, 2013)

The following quotes are from the teachers at School B regarding the engagement and motivation of the children. The finding revealed that the participating teachers all agreed that the children were engaged in positive learning experiences during the PST lessons.

- The children were very engaged. (Louise, 2013)
- It [mLearning] really gets them engaged. The minute they see something new and exciting, their eyes light up. (Rachel, 2014)
- The children like having others in the classroom and they were engaged. (Rachel, 2014)
- Very engaging, a perfect topic for this age group. (Rachel, 2014)
- Huge congratulations everyone. The whole class was fully engaged in every activity. (Louise, 2015)
- The students love to act so your use of acting and videoing really engaged them. (Rachel, 2015)
- The interactive nature of the activities kept the children engaged and excited. (Rachel, 2015)
- The children love it [technology]. It engages the children. (Rachel, 2015)
5.3.2.2 Increased technological knowledge and confidence using mLearning.

The teachers had the opportunity to learn from the PSTs when they came into the classrooms. In the second year (2014), Rachel requested that the PSTs create something using interviews that the children had completed with family members about what school was like in the past. The PSTs created digital books using iPads in the grounds of the school. The children shared their books with Rachel, who asked for copies of all the books.

In the final year, Rachel commented that the Anzac movies that the children completed with the PSTs were relevant to the Year 3 history curriculum and good for assisting with her program. As a result of the PST Anzac lessons, Rachel modified her history program. Rachel requested copies of the movies which were provided a few days later so that the children could watch them on a large screen in class. Rachel commented that she would use the QR code idea modelled by the PSTs for guided reading comprehension questions in her future teaching. The comment shows that the technological knowledge gained through the interactions with the PSTs was transferrable. After the third year of PST visits, Rachel was clearly more confident using mLearning and had a positive outlook. When she was asked about the negative media surrounding technology she responded:

I think all we can do is promote it [mLearning] and be positive and show the media how it can benefit students’ learning. (Rachel, 2015)

I get new fresh ideas and enthusiasm and different ways to approach things that you may have done the same way for a long time. (Rachel, 2014)

I have made an iMovie with my class. (Louise, 2015)

Teachers need more professional development to guide children’s learning. (Rachel, 2015)

Louise, the pre-primary teacher at School B, was the most experienced teacher participant in terms of her technological knowledge in the classroom. She used a set of iPads
in her class three times each week. Louise commented that she had not used QR codes in the classroom before. She said that the experience had made her move out of her comfort zone. She observed the groups of children and PSTs, so she was acutely aware of what they were doing. Although Louise spent a lot of her personal time exploring mLearning and considered herself to have a high level of technological knowledge, her Principal (in the first year of the study) said that she might have been exposed to some new things.

Louise thought carefully about what she used the set of iPads in her class for and only used them in well thought out purposeful ways as illustrated when she made the following comments:

As an educator, I do struggle to ensure that what [technology] I am choosing has got valid educational use and is not just a toy or a timekeeper. (Louise, 2013)

One of the things that Victoria [ICT lecturer] taught us, early on was to look for something that’s going to engage the children creatively. A lot of the apps do support education, and it is not many that extend the learning. (Louise, 2014)

When the PSTs used iPads in her class in the first year, Louise observed a number of new apps, provided the PSTs with good feedback and was satisfied with the experience.

Louise and Rachel made the PSTs feel welcome and provided them with detailed pedagogical feedback. In addition to pedagogical feedback Rachel often made positive comments about the technology used such as: “That is great; I love the ShowMe app” (Rachel, 2014).

In the second and third years of the study, Louise and Rachel engaged well with the PSTs, provided feedback and frequently visited each other’s classes so that they could observe the activities in both classes and therefore gain maximum technological knowledge.

In the first year of the study, the University invited the participating teachers to attend free professional development alongside the PSTs in ICT tutorials at the University. The cost
of teacher relief meant that the teachers from School B were only able to attend one whole session in the first year. Rachel said that she enjoyed the ICT tutorial that she attended at the University in 2013.

In subsequent years, the participating teachers were invited to attend free professional development in the school holidays. This offer was not taken up by the participating teachers at School B. In the first year of the study the University delivered two staff professional development sessions at School B. Twenty-five comments were made by teachers and school leaders at School B regarding professional learning that occurred as a result of the partnership. Some examples of these comments are illustrated:

I was exposed to things I may not have seen or had time to explore. (Louise, 2013)

I think I have learnt a bit. I have improved in that I have seen lots of different things, and different ways the students [PSTs] have approached things. (Rachel, 2014)

They [PSTs] come in with a different view; it makes you think out of the box. (Rachel, 2014)

When they [PSTs] come I always look at what they are doing and think about how I can use their ideas in my lessons. Some of the apps and things they have introduced me to they have shown me a new way of doing something that I had always done on paper. (Rachel, 2015)

Louise and Rachel increased their confidence using mLearning and personal technological knowledge as a result of the interactions with the PSTs. Louise used free apps in her class and stated that as a result of the professional development from the University she was starting to think about purchasing some apps in the future. Figure 5.3 illustrates the development of technological knowledge in the teachers at School B.
Figure 5.3. The technological knowledge of the teachers at School B.
5.3.2.3 mLearning resources and technical support.

The partnership provided School B with the opportunity to borrow mLearning resources. Louise asked to borrow the Bee-Bots in the second year and used them for a whole school term and indicated that the children frequently used and loved the Bee-Bots. Louise wrote an article for her school’s newsletter including a photograph of children using the Bee Bots. Both participating teachers borrowed Bee-Bots and digital microscopes. After borrowing digital microscopes from the University, School B decided to purchase some of their own. All the teachers and school leaders at School B made comments regarding mLearning resources.

A barrier to mLearning at School B was a lack of technical support. The process for managing the iPads in School B improved with time. In the first year, children were responsible for collecting the iPads and the end of the day and charging them. The staff were responsible for collecting and returning the iPads to a secure charging station in the second year. The change of leadership in 2014 affected the technical support in School B because the Principal was proactive with respect to technology integration and provided the necessary technical support. School B purchased a secure charging station and carry boxes at the start of the second year of the study. The Wi-fi was also upgraded in 2014 because it did not function well in some parts of the school and would only support a limited number of devices. In 2015 the Principal stated that poorly working technologies gave teachers an excuse to avoid using technology. Ten comments were made relating to technical support. Some examples are:

You go to do an activity with your class; you presume that the apps are going to be on the iPad and then they are not. (Louise, 2014)

I tried to put some apps on [the iPads] and for some reason, it is not letting me put anything on, and it was a bit of a downer, and we are still trying to figure that out. (Rachel, 2014)
The partnership has given me more confidence to use mLearning in the classroom more effectively, but I still have issues at times, accessing the Internet and uploading new apps. (Rachel, 2015)

5.3.2.4 The partnership between the teachers at School B and the University.

The logistics of the PST visits to the schools presented challenges on occasions. The challenges associated with the teachers were that teachers forgot about the PST visits and were disappointed if a group or PSTs delivered a poor lesson. In the first year, one group of PSTs who delivered lessons in Louise’s class did not engage well with the children and did not include any mLearning activities. Louise was disappointed and relayed her disappointment to the school Principal who commented that the teachers did not get much out of the experience. When the researcher wanted to conduct the final interviews in 2013, the Principal asked if she could provide the feedback from the teachers as they were reluctant to take part in an interview. However, Louise was professional in the classroom and made all the PSTs welcome and provided them all with quality feedback.

Rachel, the Year 2/3 teacher, was not present for one of the PST visits. Another teacher with her Year 1 class stood in for Rachel. This teacher did not use mLearning and according to the Principal was not interested in using it. She provided limited feedback to the PSTs but after a successful lesson that children clearly enjoyed; this teacher commented she had learnt a lot and could see how mLearning could be beneficial in the classroom. The children demonstrated their enjoyment of the lesson by showing enthusiasm and willingness to engage in the tasks set. The Principal reported that a spark was ignited in this teacher immediately after the PST visits but four months later at a staff iPad professional development workshop, she had lost whatever interest she may have had earlier because
during the professional development the teacher did not engage with the iPad, instead busily glued envelopes.

The researcher’s impression was that although Rachel was keen, she was busy in a new job, was time poor, and the partnership was not a high priority. Rachel illustrated the lack of priority she placed on the partnership by forgetting to tell the University that she was unavailable for the first PST visit. On another occasion, Rachel’s class was very late returning from an assembly so that the PSTs’ lessons were cut short.

Partnerships need people to communicate and work together to achieve common goals. Whilst the teachers were enthusiastic about the mLearning partnership at times other factors, such as a lack of time affected the teachers’ abilities to commit to the partnership.

The relationships between the participants and the University staff grew throughout the three-year period. Expectations were clear and good communications were maintained. Clear benefits for both school and University participants gave the partnership the ability to go beyond the three-year research period. Anna, the Principal in the final year, understood the benefits of the partnership and plans were put in place to provide professional development opportunities for the staff at School B using PST mentoring and the ICT intensive course during the school holidays. Figure 5.4 summarised the benefits and challenges for the participating teachers at School B.
Figure 5.4. The benefits and challenges of mLearning for the participating teachers at School B.
5.4 Conclusion

The six participating teachers in the research were individuals with different levels of technological knowledge and differing attitudes regarding mLearning in early childhood education, commitment, and engagement with the partnership. They were affected by the context of their schools which included parents and carers and school leadership. The degree to which each teacher contributed towards the partnership differed. Whilst all the teachers welcomed the PSTs in their classrooms and provided pedagogical feedback some teachers were more engaged and shared what they learnt with colleagues in their schools.

The teachers all indicated that the children benefited from the PST visits because they were engaged and motivated to take part in rich learning activities which included cooperative learning and problem-solving. Concerns about the technology distracting from the learning were not realised. During the PST visits, the children worked in small groups with a high ratio of adults to children. These small groups were deemed by the teachers to be beneficial to the children’s learning.

The participating teachers gained technological knowledge through the classroom encounters during the PST visits and had the opportunity to take up further professional development by working one-on-one with the University ICT lecturer or attending professional development workshops delivered by the University. All the teachers indicated that they learnt from the experience with some engaging and gaining more than others. One of the teachers commenced the partnership without knowing what a wiki or url was, and a year later she was competently creating iMovies, digital books with her class which demonstrates an increase in her technological knowledge.

There was a lack of opportunity for teacher professional development in mLearning in the partner schools. The mLearning professional development offered by the University to
the schools was beneficial to the participating teachers and other teachers within the partner schools. The University also offered technical support and mLearning resources for the schools to borrow. Teachers at both schools borrowed mLearning resources from the University and asked for details about where mLearning resources could be purchased.

The relationships between the teachers and the University took time to develop and with time interactions became easier and problems more easily resolved. The philosophies and beliefs towards mLearning in early childhood education of the practising teachers changed as the partnerships developed illustrating the ability of school-university partnerships to change practice.