

## **Fostering motivation for literacy in early childhood education using iPads**

Ann Hatherly

Early Years Team Leader, CORE Education

Auckland.

and

Bridget Chapman

Head Teacher, Kensington Educare

Whangarei

### **Introduction**

We are reminded daily through government policy and the media of the importance of young children getting a good start to literacy learning. This attention has been sharpened in recent years by the implementation of National Standards in reading, writing and mathematics and by strategies such as Ka Hikitia. These have highlighted that improved achievement in early literacy is essential to lift overall Māori success “throughout schooling, further education and life” (Ministry of Education, 2009, p. 22). For a country like New Zealand that seems increasingly needful of a “knowledge economy” for a prosperous future (Department of Labour, 2008), arguments for more attention to be paid to knowledge creation—and by association to literacy—seem compelling and hard to dispute (Bolstad & Gilbert, 2012; Hopkins, Green, & Brookes, 2013). However, behind these sit a much tougher nut to crack: how to ensure that literacy achievement is something that all children enjoy and aspire to. In an environment where public rhetoric tends to mistrust literacy teaching and looks largely to national testing regimes for solutions, the complexity of the “how” is often reduced to literacy elements that are easy to measure and amenable to swift reporting. Yet research

(Baker & Wigfield, 1999; Marsh, 2000; McNaughton, 1995; Walker & Debus, 2002) and common sense tells us that literacy learning is much more complex than this. It is dependent on a matrix of emotional, social and cognitive factors.

This article reports on one early childhood centre's initiative to use iPads to address the emotional competencies required in literacy learning, in particular motivation and engagement, for a small group of boys. The teachers saw these boys as having many talents and interests—they were described as “our wonderful construction boys”. However, the teachers noticed that they rarely voluntarily interacted with books and storytelling or got involved with activities that were overtly literacy focused. The teachers were concerned that this might hinder the boys' successful start at school.

A timely opportunity to participate in a professional learning cluster on pedagogical leadership and literacy, funded by the Ministry of Education, provided the centre with outsider support to inquire into the value of iPads for literacy learning, particularly for these boys. This brought us as the joint authors of this article together: Ann Hatherly as the professional learning facilitator and Bridget Chapman as the centre manager and leader of the professional learning initiative at the childcare centre.

We illustrate the impact of the iPads on boys' increased participation and engagement in literacy events in this article through two “stories of practice” involving two children attending the early childhood centre at the time the iPads were first introduced. Because the genesis of this initiative was professional development not research, the authors' intentions in presenting this work here are to ignite interest in the possibilities for using iPads, or similar tablet devices, in early childhood contexts.

### **Discussion of relevant literature**

Afflerbach, Cho, Kim, Crassas, and Doyle (2013) point out that cognitive skills and strategies are too often seen as the pathway to literacy achievement. In early childhood contexts, these skills and strategies would include children gaining alphabet knowledge, phonemic awareness, ability to form letters or write names and the ability to “read” or tell a familiar story. These authors argue that, while these are important, there are several other imperatives for children to experience success in literacy learning. These

include constructs associated with the affective domain; how children feel about themselves and about their learning. Affective attributes commonly include motivation, engagement and self-efficacy. For example, research has shown that children who are motivated and engaged are more likely to invest time and perseverance in literacy-type activities (McCarrick & Xiaoming, 2007). Likewise, children who believe in their own ability to learn are more likely to work through the many challenges that literacy learning presents (Baker & Wigfield, 1999). Neuroscience has highlighted that habits and attitudes such as these are laid down early in life. What happens during the early years is likely to determine the strength of the affective attributes that a child carries throughout their education and into adulthood (National Scientific Council on the Developing Child, 2007). This suggests that the affective elements determining learning—and in this case literacy—should be given at least as much attention as cognitive elements in early childhood education. In many respects New Zealand early childhood education is no stranger to the idea that learning of any kind involves a complex interplay of knowledge, skills and learning dispositions and that it may in fact be the dispositions that are the most powerful trigger for learning success (Carr, 2001).

While there is still relatively little research on the use of touch-screen tablets and iPads specifically, it has long been known that information and communication technologies (ICTs) have the propensity to increase children's motivation, interest and engagement in literacy and language learning (Haugland, 1999; Liang & Johnson, 1999; McCarrick & Xiaoming, 2007; McManis & Gunnewig, 2012; Shuker & Terrini, 2013). It also has been suggested that children most "at risk" in terms of literacy learning stand to benefit the most from the addition of ICT (Liang & Johnson, 1999; O'Hara, 2008). For example, in O'Hara's case study research, the teachers reported that some children between three and five years old who displayed short concentration spans in the majority of classroom activities were able to concentrate longer when activities involved the use of computers.

In explaining how touch-screen tablets may contribute to early literacy, Neumann and Neumann (2013) propose a framework based on social constructivism. They contend that exposure to visually appealing app icons and symbols from a very young age helps to create an expectation and understanding that symbols have meaning and can be "read". Over time and with the help of "knowledgeable others", who may be adults or

other children, this understanding is then applied to decoding the alphabet. Central to this proposition is children's active engagement with the technology. As the authors explain, it is through "the use of their hand and fingers to directly and purposefully interact with touch screen interfaces" (p. 2) that this learning is ignited. Cullen (2002) reminds us that from a social constructivist standpoint and Te Whāriki, the New Zealand early childhood curriculum (Ministry of Education, 1996), literacy learning is encouraged through the use of familiar cultural tools and artefacts, a description that increasingly applies to touch-screen tablets. It is therefore not surprising that they are being added as a literacy tool of choice for many early childhood centres.

A synthesis of practitioner research involving 60 early childhood services nationwide in New Zealand (Hatherly, Ham, & Evans, 2010) found that the use of ICTs available at the time (computers, cameras, digital microscopes) produced a number of outcomes within the affective domain, including motivation and engagement, confidence and a sense of belonging. For example, heightened levels of motivation and engagement were indicated not only by the interest children showed in the technology itself, but also by things such as children's "expressions of enjoyment, pleasure and pride" and the longer than "typical" time children invested in activities when ICTs were involved (p. 51). Rather than using proprietary software and the many "skill and drill" games created specifically for early literacy learning, the teaching teams in this project were encouraged to explore more open-ended programs such as Photo Story 3, Kid Pix and iMovie with the aim of enhancing creative and communicative elements of literacy. Children often shared the stories they created with a wider audience of their extended family and friends through the use of social media such as blogs, a process that motivated many children to engage in further storytelling and retelling experiences.

An experimental study involving 41 children aged three to six years (Couse & Chen, 2010) found that children's motivation to pursue drawing using a tablet and stylus usually eclipsed the technical issues that arose. When interviewed the majority of children said they preferred to use the tablet rather than conventional writing materials. While some children did not give specific reasons for their preference beyond liking the tablet better, others were more exact in their responses. They indicated that their preference was based on affordances particular to using digital devices such as the

ability to draw without running out of ink and being able to make changes to their work easily. However as Yelland and Masters (2007) also remind us, it is when technologies are accompanied by “affective scaffolding”, that is emotional support and encouragement by adults and peers, that the learning and motivational potential is actually realised. Having digital devices is one thing but in the context of enlightened pedagogy they become altogether more potent as learning tools.

Most young children find digital gadgets of any kind intrinsically appealing and intuitive to use and this is no more evident than with the latest touch-screen tablets such as iPads. It is not the easy-to-master touch interface on these tablets alone that makes them well-suited to early childhood contexts. It is also their portability and versatility (Neumann & Neumann, 2013). O’Mara and Laidlaw (2011) speak of the blurring between physical and virtual play, brought about by the ease with which an iPad could be transported to any context, as they describe two children combining a tea party game on the iPad with a tea party using props. As Sandvik, Smørdal and Østerud (2012) point out, the portability of iPads and similar tablet devices has taken ubiquitous learning to a whole new level by allowing:

the children and practitioners to take advantage of various locations in the kindergarten, such as the floor, at tables and on sofas etc. These locations invite various formations of peer groups and involve a highly flexible use situation influenced by children. (p. 208)

This ability to so easily take literacy to the child rather than bringing the child to the literacy is particularly useful for engaging children—often boys—who opt for activities in the outdoors such as sand play and climbing.

The advent of mobile application technology (apps) that can be downloaded and run on tablets, either cheaply or for free, has also greatly enhanced the diversity of teaching and learning possibilities afforded by these “any time, any place” devices. There are apps available for every occasion and every pedagogical approach, from behaviourist to constructivist, didactic to exploratory, decontextualised to situated learning. App selection requires thoughtfulness on the part of teachers regarding both the purpose and the fit with the theoretical imperatives that guide their practice.

The ease with which many apps provide for oral, visual and written communication, either separately or in combination (multimodal literacies), make iPads particularly applicable for younger literacy learners who are yet to experience formal literacy learning. The iPads' versatility fits neatly with the view of literacy and communication provided by Te Whāriki (Ministry of Education, 1996). While Te Whāriki is not prescriptive in how and what literacy is taught, it does make recommendations that children develop a wide repertoire of literacy practices for a range of purposes. Proponents of the New Literacies movement (Lankshear & Knobel, 2003; Leu, Kinzer, Coiro, & Cammack, 2003) have highlighted how the advent of digital technologies has extended the skills, strategies and dispositions required to be literate. Being able to locate, produce, mash and evaluate has become very important, in addition to text reading. The good range of open-ended iPad apps now available, together with the camera-enabled iPad itself, allow children to readily invent, create and manipulate publishable texts using multimedia (Hutchison, Beschoner, & Schmidt-Crawford, 2012). As they do this they learn how communication and storytelling works. Ashton Warner (1963) brought to our attention early on the importance of couching learning in children's "real" experiences. In something as complex as literacy learning it makes sense to have content that the learner can relate to. The functionality of the iPad which enables children to make literacy texts based on their current interests and activities is therefore potentially very beneficial particularly when, as we have argued, the affective attributes in literacy learning are appreciated. While computers also have the facility to personalise literacy learning for children, they are not as versatile or intuitive as iPads.

### **How iPads contributed to literacy in the case study ECE centre**

The childcare centre is located in a medium-sized city with a substantial Māori population. The centre provides all-day education and care for 30 children from two to five years of age, employing one full-time teacher (also the centre manager) and four part-time teachers. Staff to child ratios on any given day are typically 1:7. The centre runs a fluid programme with a focus on valuing spontaneous moments of learning as encouraged in the New Zealand early childhood curriculum, Te Whāriki (Ministry of Education, 1996): "Each child learns in his or her own way. The curriculum builds on a child's current needs, strengths, and interests by allowing children choices and by

encouraging them to take responsibility for their learning” (p. 20). The teachers place importance on providing learning experiences that are authentic and meaningful for children. The Education Review Office noted that the centre has “a strong focus on biculturalism” and that “teachers welcome input from the Māori community to help them to reflect cultural values and tikanga in the centre environment” (Education Review Office, 2011, p. 1). The centre manager, who had previously worked in an International Baccalaureate school in China with a strong ICT focus, led the inquiry. However, support and involvement from the other staff members was readily given at the beginning of the project and continued right through until the end.

After the head teacher attended a series of professional development workshops on using digital technologies in early childhood, the benefits of purchasing two multifunction iPads to replace the centre’s single function digital camera, which had come to the end of its useful life, quickly became apparent. Once these were purchased, staff made a decision not to load games on the iPads out of concern that these would become the activity of choice for children while not significantly contributing to the creative learning valued at the centre. Already committed to an 18-month self-review focusing on literacy and pedagogical leadership, the staffing team used this as an opportunity to focus on how their new iPads could be used as a specific tool in promoting literacy.

Staff believed that self-motivation was a key disposition for children to become successful readers later in life. Baseline data collected using time sampling and anecdotal observations clearly indicated that girls were engaged with books and proactively seeking out opportunities during the day to “read” books for their own pleasure. Staff were concerned that several of the boys were not fostering the same interest. The issue “How can we make literacy a more engaging experience for boys using digital technologies?” was developed as the self-review question to drive their journey over the next 18 months. At the time there were 19 boys enrolled in the centre; however a group of eight boys became the focus for this project.

The boys displayed talents in other areas and were spending quality time problem solving, reasoning and working creatively in the sandpit or block area. When the iPads

were introduced to them in these areas of play, the boys were highly interested and keen to explore these new tools confidently. Teachers grasped the opportunity to use the iPads as a lens that would take them into the boys' world and allow for some shared understanding to develop, which would ideally promote further learning experiences from a literacy angle.

Through the use of some open-ended iPad applications, teachers started capturing moments that mattered to the boys and had them verbally share their ideas, knowledge and understanding in this new context. Through this process, staff were able to connect more personally with the boys, and consequently develop their trust in exploring new ways of sharing their own stories. These children were keen to share their efforts with their whānau, and their families were mutually fascinated and interested in what their child had to share.

### **Joseph's story**

Joseph and his teacher (Bridget) were exploring the Hairy Maclary app, and discovered the voice-recording feature. Joseph quickly grasped that he could be the first child at the centre to have his voice recorded in the book. He was instantly motivated to go further and Bridget prioritised her attention on the situation. Given the culture of the centre and the open communication between staff, this decision was encouraged by the team. Further children gravitated towards Joseph and his work, coming and going throughout the following two hours that he applied himself to this challenge.

There were a number of challenges to work through as they couldn't get the feature to work and needed to switch to another app altogether (My Story, an app where a story can be created using voice, photos and drawing). Joseph did not give up or lose interest. This problem presented itself as an opportunity for him to take ownership and have complete autonomy over the project. Once given the initial guidance, he was keen to tackle the challenge independently. For Joseph to be successful, it was necessary for him to first become familiar with the individual characters as well as learn the story so he could become articulate at retelling it. This meant engaging with the paper version of the book, which he was now happy to do. He made his story by using the iPad to take photos of the illustrations in the Hairy Maclary book. Then he recorded himself telling

the story page by page. Joseph had often been reticent around sharing his ideas with others; however, when working on the iPad he displayed confidence and determination to have his voice heard.

Through this process of creating his own version of Hairy Maclary, Joseph had become very engaged with the story. He had developed an understanding of the different story elements as well as its sequence and characters; all at a much deeper level than most children would have experienced. Through its retelling, Joseph developed his oral capabilities and gained a new confidence to engage with others. His proudest moment of all was sharing the final product with his whānau at the end of the day. There was great interest and a sense of pride in what their younger brother, cousin and nephew had achieved. Bridget was also able to email the link to his new entrant teacher, so that he had the opportunity to share this experience and achievement with her upon his transition into school.

### **Tyler's Story**

Tyler is a three-year-old boy who had been a keen observer of the older boys working with the iPads for some time. He had recognised that the iPads were tools for storytelling and with support from staff had participated in a range of learning scenarios with the iPads. These had included recreating nursery rhymes and oral storytelling through using creations made from clay for props. By this time the centre was using the app Aurasma (an augmented reality app that works in a similar way to a QR code) and children were linking single pictures to videos of themselves telling stories.

Tyler's motivation for working on the iPad was highlighted one day when playing outside with his friends. They were dramatising a cooking scenario about making pasta. Tyler assumed a leadership role and was writing down their ideas on a clipboard. As the scenario was coming to a close, Heidi their teacher shared that certain elements of their dialogue reminded her of the story of the Little Red Hen. On this occasion Heidi had the iPad to take photos of the children at play. After their conversation and weighing up the situation, she suggested bringing up the app of the Little Red Hen to explain her thoughts to the boys. After sharing this with them, the boys returned to their play with more direction and confidence especially around the language they were using. Tyler

would pause the app, repeat the voice on the iPad and continue to write down his dialogue on the clipboard. At the conclusion of his work, Heidi encouraged him to share his work with his teacher Bridget. When she delighted in and celebrated his work and efforts, he asked confidently, “Could you put it on Facebook now?” The centre does not have a Facebook account and staff could not recall having discussed this platform with the children. His reference to Facebooking his achievements was his interpretation of how you celebrate achievements digitally, an understanding he probably brought from home.

Digital technologies, including iPads, readily offer literacy learners an audience, which in itself can be a motivating factor (McCarrick & Xiaoming, 2007). Tyler became more involved with sharing his stories as he matured and grew in confidence. His overriding motivation, staff believe, was to use the iPad, yet the learning became much more than mastering the tool. It led to a significant interest in, and understanding of, storytelling. Tyler is currently one of the oldest boys in the centre and is now bringing in picture books from home to read to others. Children are gravitating to him and he is seeing himself as an exceptional storyteller and writer. Staff feel confident that their journey with the iPads and self-review has been significant in Tyler developing such a positive disposition towards literacy.

### **The teachers’ observations and reflections**

We can now confidently say that, six months after completing our self-review, our boys are accessing paper picture books more frequently for their own pleasure. We feel that the culture around books and literacy has changed and certainly become a strength of the programme. The iPads are no longer a novelty and are used in a variety of contexts as moments of learning arise. Some days the iPads do not come out at all. Teachers continue to implement a balance of intentional teaching and child-led approaches to working with iPads.

Staff have not only been on this journey together as a teaching team, but also alongside the children. Often, the children have been the greatest teachers of all. Through their “no fear” attitude and their eagerness to give things a go, they have stumbled upon many discoveries. Although staff usually have to demonstrate the steps involved with

operating certain apps, children quickly grasp the skills and understanding needed. Children seem to possess a natural inclination towards working with iPads, and staff have been amazed at how intuitively children make connections, reflect on past experiences, show creative inclinations, and set new challenges to go further in their learning and explorations.

The overall goal was to develop a positive and excited culture around literacy, and have all children accessing books for their own personal pleasure throughout their day at the centre. Staff are proud of the achievements gained and are confident that the iPads have played a significant role in making literacy more interesting and accessible for a core group of boys within the centre.

### **Final word**

The pressure these days to ensure all children succeed as literacy learners comes with the risk that early childhood teachers come to hold a myopic view of what early literacy learning entails. The tendency to concentrate on an immediate rather than the longer-term view of what it means to be literate often drives the acquisition of skills and strategies over other important factors such as motivation. As Clark and Rumbold (2006) point out, when literacy is viewed as a lifelong habit, then the imperative for early learners alters to one of setting children up with the confidence, enjoyment and therefore motivation for interacting with texts.

As we have tried to show in this article, iPads offer promise in facilitating these affective domains, in addition to skills and strategies. However, as Yelland and Masters (2007) would attest, it must also be said that iPads alone cannot do this. It requires thoughtful teachers who put purpose before gadgets and who understand deeply the bigger picture of what it means to be a successful literacy learner.

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