

Jessica Connects: A Case Study Focussing on One Child's Use of Information and Communication Technology (ICT) in an Early Childhood Education Setting

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Abstract

Information and Communication Technology (ICT) is playing an ever increasing role in the lives of people which include young children; The role of ICT in early childhood educational services in Aotearoa New Zealand is still being argued despite curriculum, assessment and policy expectations that endorse and support its integration into practice. This chapter draws upon a small, qualitative case study involving young children and their uses of ICT in one early childhood education setting in Aotearoa New Zealand. A socio-cultural perspective has been used to recognise and examine the notion of children's understanding and practices of ICT. In this chapter the focus is on Jessica, aged 4 years old, and the ways she uses ICT in her life as tool to document and share her learning and interests. These uses also reflect Jessica as a competent and confident learner using ICT as a cultural tool to mediate her learning in her home and early childhood education setting. The researchers examine the way ICT practices can contribute and fulfil curriculum and policy intentions that can support and endorse the competent, confident learner that reflects the curriculum principle of Empowerment. The chapter supports the view that ICT can be used to enhance the empowerment of the learner. We conclude that the early childhood curriculum and policy in Aotearoa New Zealand justifies the place of ICT in early childhood settings and should guide and inform teachers to use it as a valued learning and teaching tool. The researchers are of the opinion that the teachers have an active and collaborative role in responding to the needs of the 21st century learner to direct their own learning and that this can be guided by the curriculum aspirations in the principle of Empowerment.

Key Words: Information and Communication Technology (ICT), early childhood education (ECE), socio-cultural, curriculum, empowerment.

1. Introduction

In much of today's society, Information and Communication Technology (ICT) forms an integral part of an increasingly diverse and multi-modal literacy environment.¹ This is reflected in the lives of young children where it is recognised that the variety and range of new ICTs are embedded in socio-cultural practice and are shaping how children interact and learn.² However, despite this growth and use of ICT in children's lives, the role of ICT in early childhood educational services

in Aotearoa New Zealand is still being argued despite curriculum and policy expectations that endorse and support its integration into practice.

This chapter examines how one child's expectations, knowledge and use of ICT in her daily life can be connected to curriculum aspirations, policy and further inform teaching practice in Aotearoa New Zealand. The researchers feel that the child's meaningful and purposeful use of ICT, is influenced by her social and cultural context, justify the place of ICT in early childhood services.

To contextualise the ideas being discussed in this chapter, the following section provides a brief overview of early childhood education in Aotearoa New Zealand including the curriculum, ICT policy and the expected practices shaped by them.

2. Early Childhood Education in Aotearoa New Zealand

In Aotearoa New Zealand there is a diverse range of early childhood education and care services catering for the age ranges of 0 - school age years. All services exist under the Ministry of Education.³ Although not a compulsory education sector all services are brought together under the mandatory early childhood national curriculum, *Te Whāriki*. He Whāriki Mātauranga mō ngā Mokopona o Aotearoa.⁴ *Te Whāriki*. He Whāriki Mātauranga mō ngā Mokopona o Aotearoa, Early Childhood Curriculum and Foundations for Discovery.

The early childhood curriculum *Te Whāriki* has been strongly shaped by Aotearoa New Zealand's past and its aspirations for the country's future. It recognises the unique bi-cultural nature of Aotearoa New Zealand and the diversity of the early childhood sector.⁵ *Te Whāriki*, translated from Te Reo (the Māori language) as a woven mat, is a metaphor which represents a place for all to stand and embraces the diversity, programmes and philosophies of early childhood education and care services.⁶ The overarching aspiration of the curriculum for children is:

To grow up as confident and competent communicators, healthy in mind body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society.⁷

The curriculum is underpinned by a socio-cultural framework, recognising that patterns of learning and development are fluid and cannot be segmented into discrete parts. The key premise is that children learn through responsive, reciprocal relationships with people, places and things in their own social and cultural contexts. In this context social situations are viewed as places for learning and where children will use the intellectual tools of their community that, for many of today's children, includes ICT.⁸

This metaphor of the woven mat also describes how *Te Whāriki*, draws upon and weaves a series of principles, strands and goals. The principles are

Empowerment/Whakamana, Holistic Development/Kotahitanga, Family and Community/Whānau tangata and Relationships/Ngā honongā, the strands are well-being/Mana atua, belonging/Mana, contribution/Mana tangata, communication/Mana reo and exploration/Mana aotūroa. In this chapter we focus on the Principle of Empowerment.⁹ The Principle of Empowerment states that:

early childhood care and education services assist children and their families to develop independence and to access the resources necessary to enable them to direct their own lives. The curriculum enables children to:

- Take increasing responsibility for their own learning and care;
- Develop an enhanced sense of self-worth, identity, confidence, and enjoyment;
- Contribute their own special strengths and interests;
- Learn useful and appropriate ways to find out what they need to know;
- Understand their own individual ways of learning and being creative.¹⁰

The significance of socio-cultural understandings of learning has also been specifically identified in Aotearoa New Zealand's early childhood education ICT policy. In 2005, Foundations for Discovery, a policy document designed to support and guide ICT use in early childhood states that:

In New Zealand, our lives are increasingly influenced by information and communication technologies (ICT) which support, facilitate and shape the things that people do and the lives that we lead'¹¹

The development of Foundations for Discovery supported the notion that teaching pedagogy could 'enhance learning opportunities through the meaningful use of ICT'.¹² The Ministry of Education policy acknowledges that this involves children reflecting on their own learning and communicating to others about it. It recognises ICT playing a role in enabling children to '...broaden their horizons by exploring the wider world'.¹³

In early childhood education in Aotearoa New Zealand the term ICT is used to include tools such as digital cameras, the internet, video cameras, telecommunication tools, programme tools and many other electronic or digital devices and resources.¹⁴ The range and diversity of tools available continues to

grow in early childhood services as new technologies evolve and are becoming more accessible as purchasing and user costs reduce.¹⁵

It is of interest that the range of tools and resources available for children further endorse the focus of early childhood education ICT policy that dispels the notion that ICT is simply ‘children using computers’,¹⁶ predominantly in drill and skill exercises. Instead it is about a range of ICTs that are accessible and can be chosen and used by children and teachers for meaningful and purposeful uses. This includes ICT contributing and responding to socio cultural practices and includes teaching and learning practices such as co-constructing and sustained shared thinking. Such practices significantly embrace the relational and collaborative ethos of learning between children, their peers and teachers.¹⁷

It is also evident that despite ICT equipment being readily available in many settings, there also has to be a philosophy, pedagogy and practices to support its meaningful use by children. Hatherly indicates that the ‘teacher’s mind’ is essential and without a consciousness of what meaningful learning opportunities can come through ICT then ...’ ICTs are no more than jazzy and expensive alternatives to existing resources’,¹⁸ Bolstad in her review of ICT in early childhood services in Aotearoa New Zealand also notes that things don’t just happen and that ..’practitioners must be conscious of the kinds of interactions they would like to occur in the context of ICT use and adopt pedagogical strategies to support these’¹⁹

Alert to these issues, and as part of our research involving a small group of children, this chapter focuses on one child and her family with the aim of understanding the socio-cultural practices of ICT in relation to curriculum and policy.

3. Research Aims and Methodology

This study aimed to examine how ICT practices can contribute and fulfil curriculum and assessment intentions. In particular, we wanted to explore how ICT can support and endorse the competent, confident learner that reflects the curriculum principle of Empowerment.

Research Context

The study was undertaken in a privately owned, teacher led kindergarten for children aged 3.5 years to school age (5 years). It was located in an urban setting in a well established and medium/high socio economic suburb of Hamilton, Aotearoa New Zealand, a city with a population of approximately 130,000.²⁰ There was a teaching team of four qualified early childhood teachers and a roll of 30 children per session. The kindergarten had two sessions per day with each session lasting for three hours. Children attended for either a morning or afternoon session or combined these sessions into an ‘all day’ session.

Methodology

A qualitative case study research approach was adopted which has an interpretivist epistemological orientation focussing on ‘the understanding of the social world through an examination of the interpretation of that world by its participants’.²¹

This case study involved 1 child and her family who attending the early childhood centre. The child is Jessica. Data was collected by conducting semi-structured interviews with family/whanau, including Jessica. The voice of Jessica was also captured in the narrative assessment of Learning stories.²² Interviews were recorded onto an MP3 device and stored. The interviews were then transcribed.

4. Findings

Jessica’s parents said that Jessica (age four) is already a competent, confident user of digital technologies. This is captured in some of the usual daily routines in their household. Jessica’s mother described some instances of their daily home routines that capture Jessica’s affordances and uses of digital technologies. The example that follows also demonstrates the accessibility and normality of the use of digital tools in the household as a culturally meaningful practice.

We have the laptop and computer. They (the children) run around the house a lot of the time with the digital camera. They draw chalk pictures on their driveway and before any rain comes they photo their pictures. It is an achievement of theirs and they are proud... Jessica will initiate this (‘mum we need to photo this’)... Jessica has several collections of things (e.g. rubber ducks) and she likes to photo these.

Jessica’s mother also explained that Jessica initiates and uses these devices in ways that appear meaningful to her and reflect her interests. In photographing the chalk drawings, that will eventually be erased, she is able to document and archive her achievements. This seems to be an important part of her play and learning.

Jessica’s use of technologies is widened by her participation and engagement with her family in their everyday ICT uses. For example, she uses Skype to talk, some times daily, with her Nannas who live in America and England. Jessica’s mother describes a particular routine that Jessica and her sister partake in;

The girls speak often on Skype with their nannas in England and America. Nanna (in England) has breakfast with us every morning even though she is 15000 miles away.

These family cultural practices enable Jessica to see digital technologies as a relational tool and serving a purpose for her family. This is indicated by her mother's comment about the influence ICT has on Jessica as for her it:

...brought together people and places that are important to her

The following excerpt from a learning story demonstrates how Jessica used a camera and USB stick to document and share an ongoing learning experience between kindergarten and home.

Jessica building a wooden birdhouse at the centre saw her involved right from the start in the design and what she wanted to do with it. Jessica planned to have specific coloured pieces of ribbon attached to the wooden structure. She also declared that she wanted it to go home and to be put in a specific tree in her garden. Sure enough at the end of 'Kindy' Jessica collected up her birdhouse shared it with mum and off she went.

A couple of days passed until one morning just before the session Jessica bounded in to Kindy with mum. She held in her hand a USB. She called me over and handed it to me. 'They are on there' she beamed. 'What are?' I asked. 'My photos, me and Dad and the birdhouse. We can see them on the computer', she said. So we quickly put the USB in the computer and brought up the wonderful collection of photos of Jessica and her Dad putting up the birdhouse in her garden. She explained what they did and what things they thought about when putting it up (could it be seen, was it high enough?). 'Can I show them at mat time?' Jessica asked. 'Absolutely what a great idea, shall we print them off then?' I suggested. And at mat time Jessica shared her pictures.

Jessica's Mother acknowledged the importance of this process for Jessica and commented that:

The birdhouse learning didn't just stop at the end of kindy. It was something to be treasured by Jessica and brought up, recorded and kept as a memory.

The practice of photography as a tool for documentation is used in the Kindergarten setting and, as noted earlier, by Jessica in her home environment where she is able to access and freely use a camera. The teacher's suggestion and

response of printing off the photographs to show at group time rather than projecting them on the TV screen through the USB stick could be a indication of defaulting to the teachers own ICT cultural practices and knowledge. Although the goal of presenting and sharing information with others is achieved, it could have been undertaken more effectively by using the TV screen. In this instance it would have been interesting to know how Jessica thought they could share the photographs rather than just be governed by the teacher suggestion.

Teacher reflection:

It was some time later that morning that I realised that there was no need to print them off and my narrowed suggestion was a rather unnecessary one. The mat time area has a computer and wide screen monitor and that simply transferring the USB to there was much more useful. I reflected on my limitation to realise how transferable and immediate ICT can be and my knowledge and experience of ICT was limiting some practices for both me and children. My suggestion was perhaps the only one on offer (in the child's eyes) and forgetting to ask her what we could do with them might well have shut out her more contemporary understandings of ICT.

5. Discussion and Conclusions

Three areas of interest can be drawn from the findings in this chapter. Firstly there are clearly established social and cultural practices in Jessica's world involving ICT and it is interesting to consider how or whether these are understood and valued in her educational setting. Secondly, Jessica's use of ICT reflects curriculum and policy aspirations where she seeks to direct and share in her own learning with others.²⁵ Finally it is interesting to reflect upon the evidence of an ICT pedagogy that may present in this example and to consider the implications on the use of ICT for learning and teaching. Each will now be discussed.

In Jessica's world ICT is embedded in her families' social cultural practices. She uses ICT as an intellectual tool for many reasons that reflect practices defined by meaning and purpose. For example, she creates memories by documenting and archiving her work and uses Skype as a means of connecting and communicating with family. Jessica would seem to recognise that the use if ICT can also involve others too. For example, in this study her family and teacher. What is of key significance is that Jessica intends, and is able to transfer her cultural understandings and use of ICT across boundaries between home and her educational setting.

Jessica's use of ICT would also be meeting curriculum aspirations as she directs her own learning through her practices and is able to contribute her own strengths and interests. Jessica is using ICT to be creative and find out what she

needs to know or communicate about things with others. Importantly Jessica is able to demonstrate through her ICT practices what she finds important and purposeful as a learner. This is shown by her reflecting on her own learning and, communicating with others through the ICT tools of digital photography and the USB stick.

A Pedagogy that is supportive of ICT use requires an appreciation and recognition of the place of ICT in the teaching and learning relationship. In doing so it requires teachers to be aware of the possibilities that ICT extends to children's decision making and purpose in their learning. It would seem that a Pedagogy of ICT also requires openness to such possibilities in learning that can be suggested by the child if we are prepared to ask and listen. Indeed, relational teaching requires a genuine sharing of ideas and perspectives between the teacher and the child so that meaningful and collaborative practice can occur. Through practices such as sustained shared thinking the creation of knowledge, extension of interests or problem solving can take place, and ICT can play its part in this.

This study aimed to examine how ICT practices can contribute and fulfil curriculum and assessment intentions. In particular, we wanted to explore how ICT can support and endorse the competent, confident learner that reflects the curriculum principle of Empowerment.

Jessica's use of ICT in her early childhood setting and home is fulfilling curriculum and policy aspirations. Her identity as a learner is driving her use of ICT as an intellectual cultural tool in, and, between both settings. Therefore, it is important that teachers need to understand and respond to socio-cultural practices that have meaning for children and how it reflects them as learners so that curriculum and policy aspirations are fulfilled.

Notes

¹ Lydia Plowman, Joanna McPake and Christine Stephen, 'Just Picking it Up? Young Children Learning with Technology at Home,' *Cambridge Journal of Education* 38 (2008): 303-319.

² *Ibid.*, 306.

³ Rosina Merry, 'The Construction of Different Identities Within an Early Childhood Centre: A Case Study,' *Informing Transitions in the Early Years*, ed. A.W. Dunlop and H. Fabian (Maidenhead, UK: Open University Press, 2007), 45-60.

⁴ *Ibid.*

⁵ Tilly Reedy, 'Toku Rangatiratanga na te Mana-Matauranga. Knowledge and Power Set Me Free....' *Weaving Te Whaariki: Aotearoa New Zealand's Early Childhood Curriculum Document in Theory and Practice*, ed. J. Nuttall (Wellington: New Zealand Council for Educational Research, 2003), 51-77.

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- ⁶ Wendy Lee, et al., *Understanding the Te Whāriki Approach: Early Years Education in Practice* (New York: Routledge, 2007), 80-99.
- ⁷ Ministry of Education (MoE), *Te Whāriki. He Whāriki Maaturaunga mo nga Mokopuna o Aotearoa. Early Childhood Curriculum* (Wellington: Learning Media, 1996), 9.
- ⁸ Margaret Carr, *Assessment in Early Childhood Settings. Learning Stories* (London: Paul Chapman Publishing, 2001), 5.
- ⁹ Lee, et al., *Understanding the Te Whāriki Approach*, 21.
- ¹⁰ *Ibid.*, 78.
- ¹¹ Ministry of Education (MoE), *Foundations for Discovery. Supporting Learning in Early Childhood Education Through Information and Communication Technologies: A Framework for Development* (Wellington: Ministry of Education, 2005), 2.
- ¹² *Ibid.*
- ¹³ *Ibid.*, 3.
- ¹⁴ Rachel Bolstad, *The Role and Potential of ICT in Early Childhood Education. A Review of New Zealand and International Literature* (Wellington, New Zealand: NZCER, 2004), 1-2.
- ¹⁵ Anne Hatherly, 'ICT and the Greatest Technology: A Teacher's Mind,' *Early Childhood Folio* 13 (2009): 7-11.
- ¹⁶ Ministry of Education (MoE), *Foundations for Discovery*, 4.
- ¹⁷ Hatherly, 'ICT and the Greatest Technology,' 8.
- ¹⁸ *Ibid.*, 10.
- ¹⁹ Bolstad, *The Role and Potential of ICT*, 86.
- ²⁰ Statistics New Zealand. Last modified 25 August 2014. Viewed on 27 August 2014, <http://www.stats.govt.nz>.
- ²¹ Alan Bryman, *Social Research Methods*, 2nd ed. (USA: Oxford University Press, 2004), 266.
- ²² Carr, *Assessment in Early Childhood Settings*, 35.
- ²³ Ministry of Education (MoE), *Te Whāriki*, 40.

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