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Democracy and information communication technology (ICT): A pedagogical relationship

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Information and Communication Technology (ICT) is acknowledged as being a significant part of many people's lives, including young children. Educational research suggests that the very nature of ICT, with its ever growing range of equipment and programs and increasingly interactive features, requires relational and collaborative pedagogical practices to accompany it. This aligns with evaluations of ICT use in Aotearoa New Zealand Early Childhood Education, that identify the need for more thoughtful and purposeful ICT pedagogy. This paper draws on findings from a small case study which examined, through a democratic lens, the relationship between ICT and teaching and learning. It argues that notions of democracy can add to an effective Pedagogy of ICT in early childhood education.

Introduction and a context of ICT

Information and communication technology is acknowledged as being a significant part of many people's lives and for many young children it forms the backdrop to their lives (Ministry of Education [MOE], 2005). In much of today's society ICT is an integral part of an increasingly diverse and multi-modal literacy environment (Plowman, McPake & Stephen, 2008). Young children (0-school age) are recipients of the fastest growth area in the youth ICT market and products globally (Siraj-Blatchford & Morgan, 2010). In particular the growth in the 'Apps' market affirms this position as some 50,000 apps in Apple's iStore were classified as educational and suited for use in schools in 2013 (Falloon, 2013).

A body of national and international early childhood education literature recognises that ICT can play an increasing part in educational activity of young children. Selwyn and Facer see this as a necessity stating that "whilst ICT use is certainly not a pre-requisite to surviving in 21st century society it is almost certainly an integral element for thriving in 21st century society" (Selwyn & Facer, 2007, p. 10).

The increasing use of ICT, and the ways it can be used by children in early childhood settings, has been similarly identified in the literature. It has resulted in significant amounts of the literature advocating for teachers to implement relational and collaborative pedagogy and practices to support such uses (Bolstad, 2004; Dalli, Cherrington, Oldbridge, & Green, 2009; Hatherly, 2009; Ministry of Education, 2005; Siraj-Blatchford & Whitebread, 2003).

Such a pedagogical focus is necessary, as ICT products and equipment become cheaper to purchase and operate and where uses of ICT for children are shifting more to content creation rather than content consumption through programmes such as 'My story', 'IMovie', 'Kidpix' and 'Photostory3' (Falloon, 2013). For example:

> ….as devices and technology have evolved to be more intuitive and creative, they have opened up a world of possibilities for children who previously may have been frustrated by the constraints of their abilities and their environment" (British Broadcasting Corporation [BBC], 2015).

As the dynamic ICT world continues unabated it requires teachers to be more and more cognisant of the uses, development and possibilities of ICT in education with a need to embed an appreciation of its relevance and capabilities within a teaching pedagogy. However it would seem that such requirements in both pedagogy and practice has been, and continues to be for some, a difficult path to traverse (Somekth, 2007; Hatherly, 2010; Archard, 2012).

A mixed reception about the place of ICT in early childhood education has tended to prevail amongst some teachers and this has been shared by some parents and *whānau* whose children access early childhood settings (Bolstad, 2004; Somekth, 2007; Barback 2012). Hatherly (2009) identifies this when she says, "It is fair to say that ICT is an area that attracts almost as many doubters as doers" (p. 8). This may explain why an ICT presence is regarded with less legitimacy by some early childhood teachers and parents and *whānau*, and thought less of than other curriculum foci such as literacy and notions of play (Archard, 2012; Barback, 2012).

The dynamic context of ICT development, and the ambiguity it provokes in some, concurs with some of the findings of a small case study which examined, through a democratic lens, the relationship between ICT and teaching and learning (Archard, 2012).

ICT, teaching and learning

Even in the relatively short space of time since my research was undertaken (Archard, 2012) there has been large shifts in new technology and its influences on people's behaviour and interactions (British Broadcasting Corporation, 2015). One example of such change can be seen in the use of language that accompanies new uses. Terms such as ' tweeting' ' snap chat', 'selfie' and 'hash tag' have entered the everyday language and behaviour of many people as new verbs and nouns, and in such a short space of time.

Such rapid shifts may well be one of the reasons why, in educational circles, some attitudes and responses to ICT still remain uncertain. Somekth (2007) refers to this as creating "disturbance to learners and teachers' established ways of framing knowledge and learning" (p. 31). As a result some teachers have confined their practice to certain ways of using ICT, rather than advancing good practice by embracing ICT developments that further enhance collaboration, communication, and creativity with children in emergent ways (Morgan & Siraj-Blatchford, 2010). This would appear to be the case in some early childhood

settings as they still tussle with the place and practices of ICT (Dalli, et al, 2009, Hatherly, 2010).

Such uncertainty can be influenced by messages from media and society which, in turn, influence parents and *whānau* of children accessing early childhood settings. Concerns by some in society have existed for a long time - fear that ICT can take away valuable aspects of learning and education, such as socialising and physical activities that are related to early childhood experiences (Brooker, 2003). The media continues to raise similar questions about the possible educational relationship with ICT and its implications on development and learning: "Parents sometimes worry that time spent playing on screen devices may be stunting important development in areas such as social and communication skills" (BBC, 2015).

This may cement what could be considered a 'pedagogy of uncertainty' toward ICT practices in early childhood settings (Archard 2012). Such a pedagogical stance will inevitably prevail as teachers, and others such as parents and *whānau*, struggle to accept and define themselves in a purposeful relationship with ICT. This includes understanding and appreciating in what ways ICT can play its part in teaching and learning. As Bolstad (2004) notes, "Practitioners must be conscious of the kinds of learning interactions they would like to occur in the context of ICT use (including between adults and children, or between children) and adopt pedagogical strategies to support these" (Bolstad, 2004, p, viii).

Such a 'lack of approach' by some teachers, may further feed those uncertainties that prevail among some parents and *whānau* whose children access early childhood settings. (Archard, 2012; Barback, 2012) This exists despite attitudes and practices of many parents and *whānau* who use ICT as part of their everyday lives and who value the place of ICT in society, as well as recognising the competencies of ICT displayed by their children (Plowman et al, 2008; Archard, 2012).

The need for teachers to examine and define their pedagogy use with ICT, and then articulate it to parents and *whānau*, is necessary. This can be supported by drawing upon embedded theoretical underpinnings that are democratic in nature and that already exist within early childhood education teaching, learning and curriculum.

Democracy, ICT and early childhood education

> Democracy and democratic citizens are not just for a later age, they are not something we prepare children to practice and become as they grow older. They are something young children can and should live here and now (Moss & Urban, 2010, p. 49).

Recognising and valuing the competence and agency of the child is a critical underpinning in a democratic pedagogy of teaching. It supports and frees children from the deficit discourses about their abilities that can undermine their genuine sense of agency and participation in a learning activity (Smith, 2007; Carr & Lee, 2012). It extols the virtues of children being, and not just becoming, competent learners and citizens. Such aspirations and perspectives underpin *Te*

Whāriki, the early childhood curriculum as it affirms the child as an active learner and contributor to their own learning ((Ministry of Education [MOE], 1996); Carr, 2001; Claxton & Carr, 2004; Carr & Lee, 2012).

Te Whāriki asserts a social justice discourse through its socio-cultural framework with the key premise being that children learn through responsive, reciprocal relationships with people, places and things in their own social and cultural contexts (MOE, 1996; Carr, 2001). In this context, social situations are viewed as places for learning where children will use the intellectual tools of their community that, for many of today's children, also includes ICT (Rogoff, 2003; MOE, 2005).

MacNaughton & Williams (2009) assert the nature of socio-cultural learning is where children become knowledgeable, and are able to make meaning through negotiation and sharing in such meaning making with others. This social process of learning and teaching invites the child and the other person/s into collaboration and challenges the traditional view of the expert adult (teacher/other adult) and the novice child. It equally requires a pedagogy of listening by teachers where the child and their views are respected and valued no matter how diverse such views might be (Dahlberg & Moss, 2005; Rinaldi, 2006). Such a process helps establish a power sharing position in the process of knowledge forming and includes, for example, the position where the child also determines what they want to know about and explore (Arthur, Beecher, Death, Dockett & Farmer, 2007).

The key ideas of influential educationalists Dewey and Freire link well with *Te Whāriki* (Archard, 2012). Dewey and Freire challenged what they saw as the failings of traditional concepts of knowledge creation and learning and teaching that were often viewed as being disconnected from the experiences of the learners involved (Dewey, 1938; Freire 1972). They both, in their own contexts, recognised teaching and learning as needing to be both experiential and meaningful to the learner and that teaching had to be responsive and interactional (Dewey, 1938; Dewey, 1943; Freire,1972; Jenlink, 2009). Dewey and Freire similarly identified that to achieve this required a pedagogy encompassing democratic principles that see the learner as both a legitimate and active contributor to their own learning experiences (Dewey, 1938; Freire 1972).

This pedagogy relies upon a consciousness by teachers to democratic values and practices as they create spaces for participation, agency and where they are prepared to be open to experimental and emergent encounters with children (Moss & Urban 2010; Rinaldi, 2006). This democratic consciousness includes a commitment to fairness in decision making and respecting the child and their ways of being and doing, and where they draw upon their own social and cultural practices. (Dahlberg & Moss, 2005; Freire, 1972; Rinaldi, 2006).

The child who operates within such a democratic climate should be one who should be able to display a confidence to express and pursue enquiry with or without others. It includes teachers recognising and inviting the use of children's own cultural and social practices in their learning and play in which their curiosities and exploration of ideas are freely expressed and pursued by them (Ministry of Education, 1996; Dahlberg & Moss, 2005; Rinaldi, 2006).

What appears to be lacking in some early childhood settings is a shared understanding of how ICT can meet the aspirations of democratic and relational learning, whilst simultaneously recognising the ICT practices many children already engage in. In this absence uncertainty, ambiguity and ad hoc practices will thrive (Bolstad, 2004; Hatherly, 2010; Archard, 2012).

In this paper, and the study it draws on, key indicators of democratic practice were identified in which ICT would contribute to and be reflected in. These were;

1. Children's participation and opportunities to learn about things that are of interest to them.

2. Children able to display agency, initiate and make decisions about the things that interest them.

3. A security and freedom to express a diversity of ideas and ways of being.

4. Opportunities to use tools and practices that are familiar to them.

These features, as already mentioned, exist in many everyday teaching and learning moments and are recognised by teachers as some sound indicators of good educational philosophy and practice (Carr, 2001; Carr & Lee, 2012). Early childhood education already espouses to approaches that supports democratic practices and recognises the child as an active and powerful learner. These approaches include, for example, recognising the rich concepts of learning in children's working theories (MOE,1996; Hedges & Jones, 2012), the powerful features of emergent learning in the curriculum (MOE, 1996) and the application of relational teaching strategies such as sustained shared thinking (Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2004).These are all 'places' where ICT can contribute and where it can add to the democratic environment, but only when teachers are conscious to this and where they apply ICT using those democratic features.

Adding to a democratic picture: Some findings from the study

The research discussed in this paper was a case study involving one early childhood centre. The study examined influences that ICT may have on child initiated and/or teacher/child collaborative learning. The research questions focussed on the ways in which children use ICT as a tool to direct their own learning and how they might be supported to use ICT as a tool to direct that learning. As the teacher/researcher in the setting, access to a range of information was undertaken within an ethical framework (University of Waikato, 2009). Data was collected through questionnaires from parents and *whānau* whose children were accessing the centre at the time of the study. Semi structured interviews with the teachers in the team and access to Learning Stories (Carr, 2001) that contained uses of ICT formed the rest of the data.

From the study a number of attitudes, practices and examples of teaching and learning, in which ICT featured and where it contributed to meaningful and relational learning, were collected. One finding from the study found that the teachers involved displayed an inconsistent understanding or appreciation to the contribution made by ICT in the learning examples. Several tended not to draw

upon any ICT pedagogical principles, rationales or ICT policy guides to explain their understanding, both as individual teachers and as a teaching team. Essentially an ad hoc appreciation to the uses and purpose of ICT underpinned some practices (Archard, 2012).

For many of the parents and *whānau* who took part there was a degree of inevitability that flowed through many of their attitudes and views towards ICT. For some both a resignation and apprehension about their children's ICT world existed, where they didn't want ICT to fully dominate their child's learning and saw a need for traditional play to be protected. At the same time the majority of the same participants often shared in a sense of opportunity and possibility that ICT gave to their children and they marvelled in their child's interest and skills of digital technology. It appeared that the rapid and dynamic world of ICT contributed to these feelings of uncertainty, inevitability and positivity in the majority of parents who took part in the study (Archard, 2012).

In general the teachers taking part in the study shared the understanding and appreciation of the importance in collaborating with, and inviting children's participation, in their own learning (Archard, 2012). As previously noted, how ICT contributes to relational and collaborative learning was inconsistent in the team. An example of this was where some teachers tended to focus on how children's mastery (and independent use) of ICT was the significant issue and outcome to be valued educationally (Archard, 2012).

An example of democratic teaching and learning?

As stated Learning stories including uses of ICT was used as data and analysed in the case study. The following is one Learning story that formed part of this data.

> This morning Paul bounded in wanting to check out the 'walking with dinosaurs' (The exhibition was in Auckland). "Can I look it up? We can check it out on Google, you can print things off and colour them. We can also see things on Youtube" he said. One piece you chose from Youtube. showed the extinction of dinosaurs and we showed it at mat time. You explained to others (children and teachers) that Dinosaurs went to Dinosaur hill a long time ago when it was cold and they tried to find somewhere warm. 'So they went into a deep hole but got trapped and disappeared' you said. This led to a bit of a debate as another child said they got burnt by the sun and another that they killed each other. It was really great to see you all putting forward your ideas and Paul, I really liked how you were happy to listen to the other children's ideas. We chose (with your direction) some great clips to look at on Youtube, so many great effects! Later on when Dad came in he confirmed that Google was really 'big' for you, Paul, in your house at the moment along with Dinosaurs!!
>
> Abridged Learning Story

Working theories can be seen as "…evolving ideas and understandings formulated by children as they participate in their family, community and cultural lives and engage with others" (Hedges & Jones, 2012, p. 38). They are, as already stated, one of the valued constructs of young children's knowledge creation where democratic teaching and learning in early childhood education can grow and where it is endorsed through *Te Whāriki* (MOE, 1996).

This example hopefully captured a number of things that would be considered democratic practice and that should be supported by a democratic pedagogy of ICT. These include the welcoming and valuing of Paul's cultural tools and practices (in this case ICT) that he brings into his centre. The working theories shared by the participants in the story supports rich discussion and the sharing of diverse and individual ideas where knowledge is constructed and co-constructed (Hedges & Jones, 2012).

The use of ICT in this episode is only part of the story but a valuable one. It provided a range of material with immediacy initiated by Paul, and added to by the other children, and included material that supports the discussion in stimulating and engaging ways.

In this example it was not just children using computers with competence or independence that is a highlight (MOE, 2005). Instead it showed the necessary interaction with the teacher (to access ICT for the information and materials) and the teacher to respond and follow children's requests to use ICT and capture the learning in the Learning Story. It also captures the relational nature of learning and ICT in which the latter is there to support the former (in this episode between teacher and children and children and children). This is more likely to happen when teachers and early childhood centres embrace and consciously apply the key democratic features of learning and how ICT can be used in everyday learning and teaching moments.

Conclusion

The example presented is one that teachers will recognise and engage in on a regular, dare I say, daily basis. It is one that is part of many types of episodes of learning that can be spontaneous or planned, momentary or on-going. Such examples makes the early childhood learning environment so diverse and exciting. This is because we can employ rich democratic practices that include the intentions and interests of the child and a teacher pedagogy and skills of relational teaching and learning (Rogoff, 2003; Smith, 2007; MOE, 1996).This paper was intended to explore how ICT may support and sustain such practices in ways that are democratic and that are valuable, do-able and purposeful for both children and teachers alike.

A democratic Pedagogy of ICT requires teacher's willingness and appreciation of the developments of ICT use and how it will continue to unfold influencing in turn the capabilities of young children who engage with it. The democratic Pedagogy of ICT requires an openness to such possibilities of learning that include suggestions by the child in which teachers are prepared to ask, be asked and act upon.

Important conversations remain about how early childhood education understands and responds to the dynamic context of ICT uses and practices. This is important as children bring more skills, language and expectations of ICT into their early childhood centres. As in Paul's example his intention was to explore and share in the things he knew and wanted to know more about. There is the need to re-assure some teachers and many parents and *whānau* and this can be done if teachers are organised in developing, being conscious of, and expressing a relevant and valid pedagogy in ICT. This can be achieved largely from many of our already well-established democratic educational principles and practices in early childhood education.

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