helping teachers think about technology

by Margie Carter with inspiration from Ann Hatherly

Many aspects of the New Zealand system of early childhood education have inspired me; most recently, seeing how they have embraced technology for teachers and children alike. Quite honestly, this was not something I expected to be impressed with on my recent trip to Aoetearoa/NZ. I'm one with big concerns about screen time diverting children from active play. In our U.S. early childhood centers much of the so-called educational software offered to children is just an entertaining form of worksheets. Large white boards are starting to crowd out space for block-building, filling the classroom with a high-tech version of group recitation lessons guided by goofy characters. While some American teachers have begun to creatively integrate technology in a child-centered way in their classrooms, I've seen others focused more on their technology than engaging with the children. Perhaps this is due to limited time with deadlines to input documentation, complete assessment reports, and keep current with e-mail, or just a reflection of our wider culture now obsessed with texting, twittering, and the like. What I saw in New Zealand was impressive use of technology as a pedagogical tool for deepening learning for the children, their teachers, and families.

Margie Carter lives in Seattle and travels widely to speak and consult with early childhood programs. As she and co-author, Deb Curtis, considered revisions for the second edition of *The Visionary Director*, they were struck by the lack of reference to technology in the first edition. To find out more about Margie and Deb's work, visit www.ecetrainers.com.

In recent years the New Zealand Ministry of Education offered a framework for the development of Information and Communication Technology (ICT) in early childhood settings, referred to as Foundations for Discovery (Ministry of Education, 2005), "aimed at creating a society where ICT gives everyone the power to create, access, use, and share information so that individuals and communities can achieve their full potential." My exposure to the ECE ICT Professional Learning Programme is limited, but I like what I've read and seen so far. An interesting aspect of the Ministry's approach has been to fund professional learning programs for teachers, rather than funding for the technology itself. Careful thought has been put into the 'why' of introducing ICT into early childhood programs, with attention to professional development for teachers that goes beyond just skill development with the tools. Teachers are challenged to rethink notions about knowledge acquisition and preparing children for school as they consider curriculum and technology. As Ann Hatherly (2009), a national team leader of the Early Childhood Education ICT Professional Learning Programme, who has served as inspiration for my thinking about technology in ECE, puts it:

"Any useful probing into the value of ICT requires simultaneous consideration of what is important for children growing up in our 21st century world to be learning. Yet, it is perhaps human nature when making such assessments to tend to concentrate on the gadgets and what they can do rather than on the more intangible elements associated with how knowledge requirements have changed. Largely because of technology, knowledge today is no longer as static, trustworthy, and unproblematic as it once was. It therefore requires a different skill set to make good use of it."

Hatherly has published several helpful papers that serve as useful provocations for our considerations of ICT and our pedagogy in early childhood programs. Describing how technological advances have radically transformed our world, she reminds us that the priorities for education have changed too with the emphasis shifting from 'what to learn' to 'how to learn.' In citing Yelland (2007)

she suggests that the exponential growth of technology in the 21st century calls for different curriculum priorities.

"ICT capability in an educational setting only becomes of substantial value when it is linked to a purpose, and that purpose rests upon enhancing the quality of teaching and learning. . . . The emphasis for learning needs to shift from knowledge acquisition to knowledge generation. In such an approach to practice, a premium is put on activities that engage children in thinking, creating, problem solving, designing, remixing, inquiring, critiquing, communicating, and making connection."

Constructivist educators have long viewed the teacher's role as the designer of educational experiences to help children generate knowledge, rather than acquire it through memorization. What do teachers need to understand about technology in order to incorporate it into their planning for children to have opportunities to generate knowledge? Again Hatherly says:

"Communication technologies — digital cameras, Skype®, blogs, and digital storytelling software to name a few — expand opportunities to function in these knowledge-building ways. However, how well this happens will depend on the adults who work with children putting as much, if not more, professional learning time into understanding these pedagogical drivers as they do into selecting equipment and increasing their skills in using ICT. . . . When we focus just on 'the tools' rather than 'the teach,' ICTs are no more than jazzy and expensive alternatives to existing resources."

Helping teachers learn about learning

What I appreciate about the New Zealand approach to incorporating technology into ECE professional development offerings is expressed in the title of one of Hatherly's investigative reports, "ICT and the greatest technology: A teacher's mind." Teachers are challenged to continually reflect on their own understandings, values, and philosophical foundations to determine how their pedagogy could be enhanced or undermined by technology tools. This examination is especially critical in the context of ever-growing information technology which, by its nature, changes the way educators should conceptualize their role in the teaching and learning process. Hatherly cites Atkin (1997) on this point:

"In a world rich in information technology, the authority of the teacher no longer lies in being the one who knows. Rather it is in being the one who knows about knowing and learning. . . . The degree to which ICTs — or any curriculum resources for that matter — extend the reach and depth of learners depends on the motivation and courage of teachers to examine their own educative purpose — philosophy and practices — against the backdrop of a technology-rich world, where knowing how to access and generate knowledge is everything."

To me this suggests our professional development work with teachers on the use of technology should start with some questions of purpose and pedagogy, rather than mere software training or ITC skills.

Strategy: Explore the important questions

Take time with your staff to explore their current thinking about how information technology is changing the nature of education. You might introduce the topic with some of the mind-boggling statistics about the rapid speed of changes already underway. For instance, according to Betsler, Finch, and McLeod (2009), new technology information is doubling every two years. For students starting a four-year technology degree, half of what they learn in the first year will be outdated by their third year of study. In such a context:

- How should we think about preparing children to be successful learners?
- What should be the focus of our curriculum?
- What changes do we need to make in our thinking and practices?
- What principles can guide us in these times of living in permanent white water?
- What questions do we have and how do we go about exploring answers?

Considering questions like these seems a far better approach than assuming our task is to teach children more, sooner. It seems to me we provide the most useful education when we help children (and teachers) learn HOW to think about a topic, question, or problem, rather than WHAT to think about it.

Using ICT with children

In her investigation of how teachers have used ICT in early education programs, Hatherly (2009) offers some lovely examples of the ways ICT, in combination with a teacher's shift in thinking, can be used to foster children's thinking, reflection, and creativity. For example, a teacher gave a child a camera to photograph a structure she had created to then create an e-book on the computer about her work. In her reflections the teacher pointed out how the process revealed the child starting to make predictions about what would happen next, how she revisited her play structure, and engaged another child in using the technology with her. Hatherly noted that both the children's and teacher's learning in these kinds of ICT activities will serve them well in a technologically advanced world: "By adding technology and reconsidering her own views of what it means to be a teacher, Anne enabled Adia to practice many of the knowledge-generating skills valued for 21st century learning."

Strategy: Generate new possibilities for teachers and children

Rather than purchasing new technology and software for your program with the hopes that the teachers and children will learn how to use it, first engage your teachers (hopefully in conjunction with the children's families) in considerations of where ICT might enhance the goals you have for the children's thinking, reflection, creativity, and collaborative learning:

- Brainstorm a list of specific approaches to learning you are trying to foster as you plan your environment, investigations, and projects for the children.
- Consider the discrete elements you might see when children are engaged in reflection, creativity, and collaboration.
- Ask the teachers to work together to review existing documentation stories to uncover possible places where some kind of ICT might extend the opportunities for the desired approaches to learning and elements you have as goals for the children.

Practice with this kind of analysis and thinking lays the foundation to introduce ICT with what Hatherly calls the greatest technology, the teacher's mind, center stage.

Recognizing children's 'funds of knowledge'

In considering the use of ICT with children in early childhood programs, Hatherly points to a key component of the New Zealand national curriculum, Te Whäriki (Ministry of Education, 1996), which places significant value on the 'funds of knowledge' that children bring to early childhood services from their homes and communities. In the U.S. we often refer to parents as children's first teachers and suggest teachers value the strengths in their home cultures. However, too frequently a child's home life is viewed as deficient in 'funds of knowledge.' I've been guilty of this and I've heard teachers make disparaging remarks about parents. For instance, 'helicopter parents' often get my scorn. With regard to technology I've admittedly been critical of family life more focused on electronic media than on open-ended play together. With technology now so pervasive in all of our lives, I believe educators and families must be in close dialogue to consider how technology can be an asset for (a fund of knowledge), rather than a distraction from, the learning goals we hold for them. The majority of children come to early childhood programs exposed to, if not experienced with, digital cameras, smart phones, computers, and the Internet. Hatherly reminds us:

"As technology becomes more accessible, and its communication function expands, increasing numbers of children are coming to centres with their own Internet presence already — photos on Flickr®, family YouTube® videos, and relationships with extended families and friends maintained through blogs and Skype®. Yet how much are teachers aware of these 'funds of knowledge' that children bring with them? As each year passes it becomes more important that teachers take time to find out about and engage with children's virtual lives, just as they do with other areas of experience and expertise children bring."

Hatherly suggests that with ICT's capacity to use oral and visual means to relay messages and connect us meaningfully with others beyond our immediate environment, the argument that computers necessarily distance children from real experience and therefore are of dubious value no longer holds water in the Web 2.0 world. I began to understand this while working in New Zealand and staying in touch with my grandchildren through texting, e-mail, Facebook®, and Skype®. I extend my thanks to Ann Hatherly, the Ministry and educators of New Zealand for their forward thinking regarding ICT and early childhood education. The challenges they have offered me, along with windows into possibilities are ones I want to pass along to U.S. educators.

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