

# Pedagogy of ICT Implementation in the Early Years

Background issues

5/15/2008



## Identified issues

- Putting pedagogy before technology
- The need for a critical pedagogy for ICT
- The need for professional development in regard to ICT for teachers
- The changing role of teachers
- A paradigm shift in the concept of knowledge in the 21<sup>st</sup> Century?



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These issues are consistent throughout the experiences and contexts of the authors.

# Pedagogy before Technology

As Meadows et al., (2005, p.3990) explains, there is little or no guidance as to “how to integrate technology into the curriculum or model best practices for its use”.



The proverbial “horse before the cart.”

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Over the last two decades there has been an intensive push to promote the use of computers in schools, as demonstrated by the Government roll out initiatives, and through reports published extolling the virtues of computers in schools. Teachers have been inundated with new technologies and the corresponding expectations for their use. In the 80's, the focus was on Computer Assisted Learning (CAL), and now “open learning through the use of telecommunications and the Web” (Watson 2001).

During this time we have witnessed the initial computer and printer purchases, the subsequent move to laptops, the progression from floppies to CDROMs, and from Internet access to the foundation of school Intranets.

As Watson (2001) explains, “Information Technology is equated with the modern world, economic success and the future; so schools must embrace the technology.”

quote: However, As Meadows et al., (2005) explains there is little or no guidance as to “how to integrate technology into the curriculum or model best practices for its use” (p.3990).

This comment epitomises the experience of the authors of this Wiki. To date, the technology integration approach has focussed on the ‘future’, without giving much thought to pedagogy and the implications of integrating ICT in the schools.

# Pedagogy before Technology



"To date we have had no large-scale longitudinal studies of ICT's impact in education, from a pedagogical or philosophical perspective, such as we have in the form of studies of earlier major curriculum development projects" (Carroll 2005 and Cox 2007).

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# Pedagogy before Technology



Technology in and of itself will not lead to a change in classroom practice, but will be used to reinforce roles and structures already implicit in educator practice (Carroll 2005).

An additional focus for Early Childhood teachers is to ensure that the inclusion of ICT into their environment and program is done in a way that is developmentally appropriate.

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Additional factors face teachers working in the early years; they need to be reflective practitioners who can insure that ICT is integrated in a developmentally appropriate manner, be aware of the impact it will have physically within the learning environment but also children's access, as well as ease and safety of use.



## The need for a critical pedagogy for ICT...

- Whilst recognising the differences between;

- Teaching of IT skills
- Development of IT knowledge
- Understanding of ICT concepts, and
- Application of knowledge, skills and understanding in a variety of contexts.

- (Goldstein cited in Jones 2002)

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Due to the lack of clear, useable objectives on a national level, as ICT outcomes are quite ambiguous in some cases (become life-long learners through technology), or overly simplistic in others (must know how to use a mouse), educators struggle to reach consensus on the separation of these concepts. Many are hesitant to develop their pedagogy due to a self-perceived lack of 'computer skills', or IT literacy, but this is only one part of the bigger picture. Understanding not just how the technology is used, but how it can be applied to a learning situation are both important, and yet the focus for professional development tends to only address the former of the two.

"Is ICT a subject in its own right, with a conceptual knowledge and skill base; or is ICT a tool to be used mainly for the learning of other subjects?" ---Watson 2001 – why not both?

## The need for professional development in regard to ICT for teachers



"If technology is to be used by students, then teachers must possess the confidence, understanding, and skills to effectively incorporate technology into their teaching practices."

(Brand cited in Scott et al., 2002)

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Research indicates that teachers feel inadequately equipped for the challenge of using technology (Northover cited in Scott et al., 2002), not due to a lack of hardware, but in many cases a lack of appropriate software or knowledge of the plethora of applications that are included with the computer's operating system or are freely / cheaply available. They often lack the time and training to become technologically competent.

Research also highlights that for ICT to be implemented in ways that are natural, meaningful and powerful (McKenzie cited in Jones, 2002), attention needs to be given to teacher training with a focus on the "pedagogical application of ICT" (Selinger cited in Jones, 2002), with emphasis upon the pedagogical knowledge required to develop children's learning as fully as possible, not on the development of operational skills (Hemmings cited in Jones, 2002).

Sheridan and Samuelsson (2003) explain teachers must have an understanding of how ICT can be used in a child's learning process in conjunction with knowledge of the technology and of how children learn.

Many teachers also feel intimidated and overwhelmed by the rapid progress of technology, which presents as much or even more of a challenge to 'keep up', as to build a comfortable understanding in the first place.

On a national, school and individual level the main problem, in the use of ICT in and for education, is the attitude, skills and knowledge of the facilitator. PD for teachers in regard to ICT are often crash courses, with an emphasis on specific computer programs and computer literacy, "while not enabling teachers to integrate technology with pedagogy and facilitate ICT-assisted interactive teaching-learning at classroom level" (UNESCO, 2006). Noss and Hoyles (cited in Cox 2007) noted that "research shows that teachers find it extremely difficult to create a learning environment that fosters creativity within existing school and curricular structures."

## The changing role of teachers

The role of a teacher will change from that of a knowledge transmitter to that of a facilitator, knowledge navigator, co-learner and courseware developer all rolled into one.

The new role does not diminish the importance of the role of the teacher but requires new ways of thinking that will culminate in ICT-enhanced pedagogy  
(UNESCO, 2006)

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Some teachers may feel threatened by giving up their traditional role; “change can provide both challenges and threats. At a personal and professional level it can call into question values, beliefs and practices that were previously assumed and accepted by teachers.” (ibid cited in Cox 2007).



## A paradigm shift in the concept of knowledge in the 21<sup>st</sup> Century?

Learning means much more than taking in a given amount of information, and/or acquiring a set of skills

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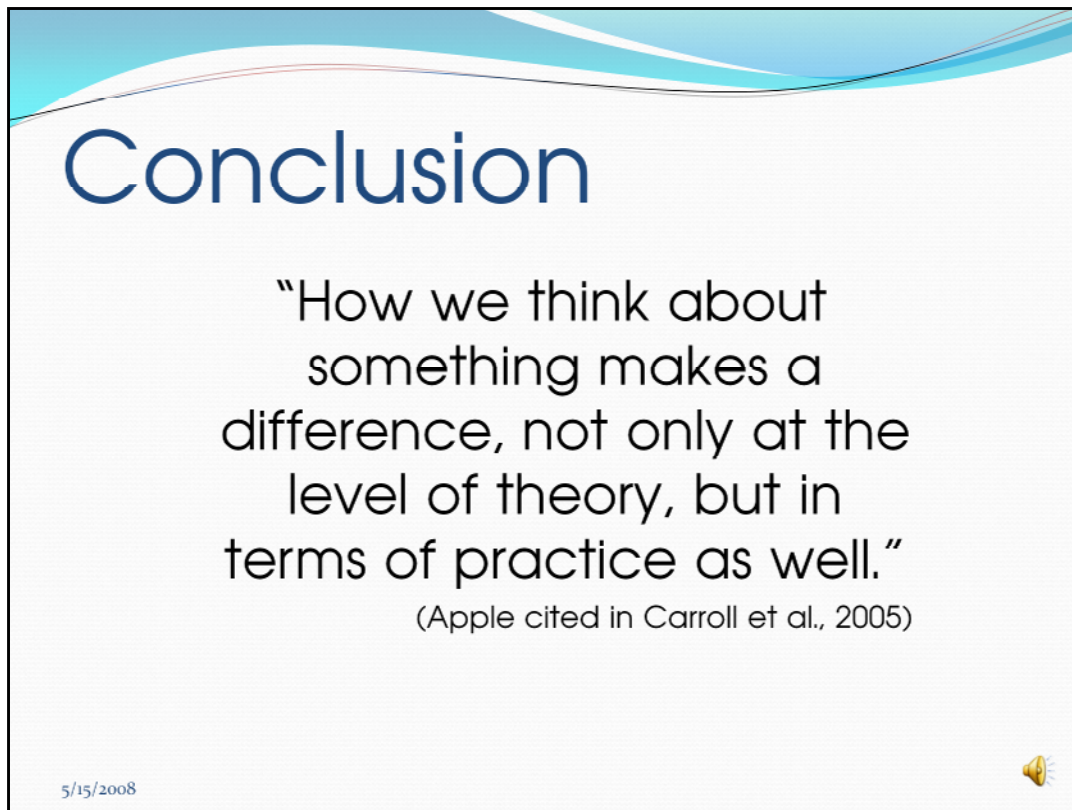
“Learning is essentially about acquiring tools for living in the broadest possible sense”.

(Wright, C. (Ed). cited in UNESCO, 2006)



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Change in knowledge requires a change in how we teach and what and how we learn.



# Conclusion

“How we think about something makes a difference, not only at the level of theory, but in terms of practice as well.”

(Apple cited in Carroll et al., 2005)

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An educator's own mindset and preconceptions may be their greatest barrier to successfully integrating ICT in a pedagogically appropriate manner.

“IT is not only perceived as a catalyst for change, but also change in teaching style, change in learning approaches, and change in access to information...(yet) research indicates that teachers are both threatened by change, and conversely not impressed by change that appears to focus on what the technology can do rather than on learning (Watson 2001).

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