

Computers and Early Childhood: Are They Compatible?

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(This article was first published in *The First Years: New Zealand Journal of Infant and Toddler Education*. Vol 2, Issue 1. 2000 - and the situation is even more pressing in 2013.)

My first reaction to the question framed in the title of this paper is 'it depends'. When I ponder on whether computers are useful to meet the child's major developmental needs in those early years, my answer is 'probably not'. In fact, if I were running an early childhood programme, computers would definitely not be a part of the programme. Any advantage that computers may have for the under-seven year old would be heavily outweighed by the disadvantage of what children are NOT doing when they are in front of a screen.

Despite various programmes to have children 'reading-writing-mathsing-quicker-faster-and-earlier, the development of human beings puts the abstract later rather than earlier. It is even later that we in New Zealand acknowledge in our school system. There is no evidence from anywhere around the world, that I've seen, that indicates leaving instruction in the abstract until seven (as they do in many countries) disadvantages students in terms of their future development and achievement.

Although discoveries have been pouring out of neuroscience labs over recent years and these discoveries have revealed to us oceans of secrets about the development of children, neuroscientists on the whole agree that we don't know much yet. They do agree that the development is awesomely complex, intricate and elegant. It's the complexity and mystery about what actually happens if you do this and **what happens if you don't do that** which education programme designers need to keep in the back of their minds.

So what aren't the children doing when they are in front of a screen? They are not having experience. Yes, I know that working on computers is an experience, but that's not what I am talking about. They are not running, dancing, balancing, stretching. Neither are they fossicking, exploring, adventuring. There are folk who will say "Of course they are exploring. Haven't you seen the software?" This is where the complexity comes into it. Exploring within a programme may develop 'what if', and 'now what' and 'if I do this', but it won't be in three dimensions, it won't be rich in sensory imprinting and there is a huge difference in exploration being embodied with your 'mouse-hand' and exploration being embodied in total. Those

neuron connections laid down in the richer embodied experience are the foundations upon which the abstract will later sit and operate.

There seems to be confusion in many practicing educators' minds between knowledge and information, between the values of real experience and virtual reality. Computers are right in there in the middle of the muddle. Take any information on any given subject in the world; without any experience you actually have no knowledge. Take, for example, giving birth. There are some reading this article, who before the birth of their first child would have read all the books, learnt how to breathe properly, attended antenatal classes, and in fact, could probably have written



Even holding it gently, he can feel its tiny heart beating, feel its tiny body under the down-feathers, and he's loving and caring for another tiny life.

the manual. They had all the information. Then they had the baby. Now they have the knowledge, and they are two totally different things. Sure, all the information was handy, but it was not knowledge. In schools and early childhood centres this same confusion turns up again and again. Children are presented with programmes, indeed often fantastic programmes, about... let's say... chickens: chickens developing in the egg, hatching, growing. And when they have familiarised themselves with the programme, do they have any knowledge of chickens? No they don't. They have information and no experience. (Mind you, a programme about chickens is far more use than a programme about snakes. At least you are able to hatch chickens in your centre so that the children can have information *and* experience.)

The child who has held a chicken when it was new knows how heavy it is, knows how to hold her hands so there's no escape, knows how those little feet and claws feel in her palm, or caught up in her hair. She knows the texture of the down, the feathers as they make their appearance, knows the chicken's voice regarding food, stress, contentment. The child knows this and a whole lot more, at various levels of consciousness, *because* she had the experience. There is no way in the world she could know without experience.

Now for the real magic! When the child hears the story 'Chicken Licken', she will automatically recall the 'image' that she has built up of chicken based on her rich multi-dimensional experience. This ability to recall an image, to combine and alter recalled images, is fundamental to being able to manage abstract thought **and it is a learned skill**. The child less than four years has to learn the receive the stimulus and respond to it by calling up the image, which will be



The real thing: a super-sensory, 3D, living, interactive programme.

based on experience. We take this for granted, but we had to learn it. So the order goes:

- the experience,
- image/name/emotion/sensory information gets filed,
- and later, given an appropriate stimulus, e.g. a word, a smell, sound...
- the whole lot is recalled in an instant.

This learning takes place during story telling, listening to people tell their stories of their day, listening to the radio, learning songs and poems. It is the reason you and I have read books and then been bitterly disappointed with the movie, because our own senses and images were much better.

Computers (and television) block this process. They provide the stimulus **and at the same time, they provide the response**. There is nothing for the brain to do. Children who have a screen for company in this critical 'window in their development', and who fail to learn how to call up and synthesise their own images are 'ineducable' without specialist help. When their teachers are speaking or talking, nothing comes up for them. The teacher may as well be speaking Latvian. If I were listening to 'Chicken Licken' in Latvian I'd be having the same response as those children. Nothing, boredom, - and the need to keep my nervous system stimulated. So I'd get into

things, and the people ticking boxes would probably label me something very unflattering which would completely miss the point.

The early childhood years have developmental imperatives for children upon which all else sits and operates, and they are broadly:

- establishing a primary-partnership relationship
- establishing relationships with family, friends, others
- establishing autonomy
- emotional development - the bodily emotions, sensuality, physical experience, exploring, curiosity, physical growth, health, skills and abilities, being at home (not alienated) in the body
- the social picture

If these aren't well done, the individual and the whole web will wobble. I don't see computers helping with any one of the above. Most computer programmes launch into the abstract and have little or no social interaction. The computer 'experience' can only give information and can't be other than vicarious. Since the stimulus provides its own response there is no development in imagination as a process.

But computers as a tool in education and as a tool for creativity *after* the early wiring has been laid down? I think they are fantastic!