FROM GUTENBERG TO SILICON VALLEY!
Computing, changing Childhood and Schooling

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Childhood is a concept invented by adults. What a child is can change as society and its economic, political and ideological beliefs alter. This article places some of the changing views of childhood alongside emerging trends in computer education. Arguing for a philosophical and historical assessment of how children learn, the article suggests that, unless control of the new information technology is more democratic and widespread, little can be gained for child or adult in the attempts so far to introduce computers into Australian classrooms.

The invention of the printing press in the fifteenth century was the beginning of a real dividing line between child and adult. To be able to read print, now produced on a much wider scale and in vernacular language, was a skill humans were not born with, and nor could they acquire it as easily as they did speech. Although modern theories would suggest that reading and writing can be learnt as easily as oral skills, (Cambourne, 1985) the print and the text that rolled off the cumbersome printing press of the medieval era were hardly conducive to easy acquisition of literacy and reading by children, adolescents, or adults. Reading and writing skills had to be taught. As Postman (1982:42) outlines,

What is being said here is that childhood became a description of a level of symbolic achievement. Infancy ended at the point at which command of speech was achieved. Childhood began with the task of learning how to read.

Formal school for children in a room or building apart from adults began with the invention of the printing press and was further enhanced by the aspirations of the middle classes, “the first class of specialized people.” The middle classes had the wealth, political power, personal inclination, intellect and driving ambition to set them apart from the great mass of lower and working class people. More importantly it set them apart from the aristocracy, whose power over economies and government would slowly but surely wane.

The liberalism, the rationalism, and the broader vision of middle class groups surfaced erratically but continually in the changing character of government, social movements and legislature reform, and grew in intensity through the eighteenth and nineteenth century. Childhood as a separate world from adults did not evolve, within this new thrust for liberal and humanitarian concern for both adults and children, without some opposition. Many of the great economic and political changes after the medieval period were antithetical to the new concepts of childhood. Industrialisation and its need for cheap labour, organised religion, parental perceptions of their rights over children, resistance to formal organised schooling and working class poverty in the new industrial estate all served to keep the concept of childhood narrowly within the realm of middle class society until the late nineteenth century. Girls, the poor, minority groups and non-Anglo cultures were introduced to this childish world much later than were the Anglo middle class boys who were schooled much earlier, and who were
destined to be the future rulers and governors of western society.

But, even if childhood was really only a male middle class reality for much of the time from the fifteenth century, the idea of a childish world with special needs separate from adults was increasingly evident both in practice, with the development of mass elementary schooling, and in theory, with the emergence of child psychology and childish everyday customs. Postman sees the one hundred years between 1850 and 1950 as the “high watermark of childhood,” and, he might have added, for the Western world. A cross-cultural perspective on the history of childhood soon reveals that children in non-Anglo, non-Western countries were perceived as children or as adults at different ages and at different periods in history to the West.

In addition, young girls in Western society are legally and socially judged as achieving adulthood before males. The age of consent and age at which marriage can be entered into without a parent’s consent are legally set at an earlier age for girls. Young women in Western society are clearly socialised to achieve and exercise emotional and personal responsibility and maturity at an earlier age than their brothers. Although these differentiated modes of behaviour are now under challenge, the legal differences remain as a legacy to the past.

If some “children”, either because of their class, sex, race or culture, are not “awarded” the concept of childhood for their own even in a modern world, then they will, according to Neil Postman and others, never now achieve it. The concept of childhood is, after its brief heyday, now on the wane. It is disappearing because television and its antecedents, the telegraphy, the rotary press, the camera, the telephone, the phonograph and the radio, have irrevocably changed the whole face of human oral and written communication. And it is in television, that great manipulator of visual symbols as well as of language, that the dividing line between adult and child is being blurred most of all, (Postman, 1982:72).

Australian children have been buffeted by these changes too, as colonial Victorian morals have given way to twentieth century capitalism with its attendant consumer oriented economy. The economic growth of twentieth century Australia no longer relied on child labour as had nineteenth century industry.

Instead, women and migrant workers were shunted in and out of the workforce to provide cheap and willing labour as Australian men went to war or, during peace times, as men moved into the better paid and higher status jobs created by new technology, new bureaucracy, and the boom times of the 1950’s and 1960’s. The world of childhood lengthened as secondary schooling took off after the Second World War, and although many children left school at the age of fourteen, especially in case of girls, Aborigines and working class children, there is no doubt that the age at which adulthood was being achieved was much later than in the nineteenth century. The dependent adolescent had arrived.

Juvenile courts, juvenile delinquency, adolescent psychological development and greater parental concern to administer to their young adults were clearly paramount by the 1950’s. In addition, the “experts” in education, health, child welfare, hygiene, childcare and related areas began to achieve prominence. Mothers no longer knew best, and women looked to the “Dr. Spocks” for information and guidance on the best and most effective methods of childraising. The formal education system intruded more and more into family life as children stayed longer in the classroom, teachers and professionals now shaped much of the childish world. The spread of kindergartens and pre-schools in the 1960’s reinforced this trend.

But, paradoxically, as childhood became longer, it less family oriented, the world of mass communications introduced popular views of adulthood and less childish activities into our lounge rooms. Child and adult are now inundated with every kind of visual image from frank and often brutal coverage of “news” to horror, violence, unreal evocations of the human condition, and the banal and the unscrupulous in advertising. Television and videos are now the most prevalent of this new kind of communications and “knowledge” explosion. Postman argues that this scenario erodes the world of childhood in three ways. Firstly, no instruction is needed to grasp the message of television, whether that message is banal or more academic. The viewer simply switches to the channel of choice and, given the present direction of television as it caters to the unthinking and the unpolitical, little is needed in cognitive complexity to understand its message. Thus, secondly, Postman argues that television requires no complex demands on mind or behaviour for it to be understood or enjoyed. Thirdly, and perhaps most importantly, the television does not separate its audience.

Child and adult view together, and, The new media environment that is emerging provides everyone, simultaneously, with the same information. Given the conditions I have described, electric media find it impossible to withhold any secrets. Without secrets, of course, there can be no such thing as childhood. (Postman, 1982:80)

Television, of course, is only one part of this adult enroachment into childhood in the western world. Marketing, especially in the area of children’s clothing, toys, games, videos, film, comics, magazines and books, has aggressively used the “heroes” of film and television to create and reinforce a demand in the young for violent, outrageous, unorthodox, and unchildish activity. The unchecked use of Rambo-style material in film and video has spawned a long list of unpleasant but depressingly popular movie productions in the last few years.

If the most popular communications medium needs little literacy and is fed indiscriminately to child as well as adult, what are the implications for the future? Will children and adults read less for their enjoyment? Why learn the complicated and complex task of reading that also needs a high level of concentration and cognitive input for continued execution? The long arm of Gutenberg stretching back to the fifteenth century having produced a revolution in printing, formal schooling and the nature of childhood, will it finally be put to rest? Will we simply produce children who, by the age of ten or so, have absorbed a considerable range of information, and who are conditioned not to look to language acquisition and reading, or even to human interaction for their intellectual and personal growth, but simply switch on the television or use a video to both provide entertainment and to gain access to the popular “knowledge” these technologies contain?

Computers, it is sometimes argued, hold the key to stopping this erosion of childhood. Computing is a complex activity that requires individual intellectual effort, a high level of literacy and some understanding or competence with computer language. Silicon Valley, with its amazing technological progress into the world of business and into the world of education, is posed as the saviour of childhood, a childhood that has lost its raison d’être because of a massive communications and information invasion of the modern world.
Postman makes a half-hearted attempt to argue that the computer could have the potential to "sustain the need for childhood". He argues that, as in the days of Gutenberg when the printing press introduced the need to teach child and adult how to read so that they could be competent in the public world, so it is with the computer. The computer has a new kind of language; one that is very difficult to learn, (Postman, 1982:149). Therefore children will need to be taught new languages and computer literacy, and thus there will be a dividing line still between the computer literate, presumably adults, and the computer illiterate, presumably children. But, as Postman further argues, computer literacy may not become a universal goal. There are economic and political interests which quite clearly will benefit by having a semiliterate computer population with the real knowledge remaining with an elite few.

There have been any number of supporters of this view presented by Postman. (Reinecke, 1982:225) has argued, from an Australian perspective, that the price of computer literacy will be too high for most of the population. His words,

The price of admission to electronically stored information will be a computer terminal and the ability to pay, are prophetic, given that the hardware, software, information systems, and current and future technological developments, remain firmly controlled by the private sector. The computer "haves" and the computer "have nots" are clearly visible as corporate and public funding is poured relentlessly into research and development of computer technology and related sciences, while social science, art, music, history, philosophy and "soft" human endeavours are pushed firmly into the funding and research wilderness. It is difficult, in the face of the aggressive marketing strategies adopted by computer technology, not to suggest that it is not a computer literate community that is aimed for, but simply more computer consumers. Within this economic strategy, the concepts of childhood and formal education hardly cause a ripple of concern.

If we accept these arguments, then it is clear that present desultory and often half-hearted educational attempts to provide computer literacy cannot go anywhere near to sustaining or re-creating the concept of childhood. The market does not need children; it needs consumers. Where the Gutenberg printing press and its successors did reinforce the concept of childhood with the need to teach children how to read the new voluminous print, such is not the case with computers. The computer is not a single entity as was the printing press. The computer has a multitude of faces, most of which are not interchangeable and which are constantly changing. The technology cannot be understood easily because its complexity goes beyond learning to understand one method of communication.

We can be taught fairly easily one method of word processing, or an accounting package, or a database method, or even, if more involved in the technology, a computer language. We can be taught to access the information data which is increasingly stored on disc or in central locations. But even if we become moderately computer literate, we still remain only consumers, as the owners of the "knowledge" control how much we learn.

It is information control that lies at the heart of this debate, not whether or not we teach children Logo. Rather than Logo or keyboard skills or word processing for kindergarten, perhaps we should be teaching children about knowledge acquisition via the new communications technology. Should we install Viatel in every school, office, home and government building (at minimum cost) so that all the population becomes not computer literate, but communications literate? Should we install a modem with every phone, and explain words like teletext, videotext and

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If we see the problem of education as one of "communications literacy", then the thrust of our educational program should alter. And for communications literacy to become a reality we will have to solve the problem posed already by many writers, and in the Australian context put strongly by Barry Jones in 1982:

The question of control of and access to information should become one of the major political issues of the 1980s. If it does not it will be a national tragedy; if we pass through 1984 without even discussing the issue, it may mean that the battle for control has — unnoticed — already been won by the oligopolists and centralizers. (Jones, 1986:184)

Not only is control of and access to information a major political issue, but it must also be considered a major educational issue. How we view the concept of childhood within the scenario remains also problematical. At present we can see that formal schooling plays a very small role in providing children with communications literacy (that is, real knowledge of and access to the major sources of information in modern society). On the other hand, popular television, video, film and computer games erode childhood and blur the dividing line traditionally seen as existing between child and adult. One could conclude from this that real knowledge acquisition for children is being replaced by a "pop" culture view of the world; not that childhood is being eroded but that both children and adults are increasingly being deprived of the necessary skills to access relevant and important information in modern society.

The case for and against computers in education, the "horrors" of television and video and the invasion of childhood by modern "mores", abound in the literature. Most of us have read the comments of Hill (1985) and others describing societal pressure on parents to have young children so sophisticated about modern technology and manners that childhood simply disappears. We wonder if the kinds of demands we put on young children as we tutor them about environmental concerns, human rights and the changing character of personal relationships, can be beneficial. We know, those of us who were born before 1960, that our childhood and our understanding and the kinds of information we were given were very different, and quite clearly limited. Thus not just computers and television encroach on our children's lives, but our perceptions, our beliefs, our human needs and our methods of communication have changed so much that no child and no adult can remain untouched, or, if they do they run the risk outlined by Smith and Sage (1983:233) of becoming inflexible, unadaptive and "unlikely to survive".

Childhood has changed. It will continue to change because adults, the people who define childhood, continue to re-evaluate what they see as childhood. There are many who believe that, since the Middle Ages, childhood has become more civilised, more protected and more enjoyable. No doubt this is true, but only in part. For many who see the rights of children as part of human rights, the "advances" of the twentieth century have had a cost. That cost has been the loss of autonomy, the loss of independence, the imposition of greater restriction, and the use of compulsion and law to make children not more childish, but more controlled.

The computer does not have the power to re-create childhood. But should we be trying to prolong childhood? There are many questions we need to ask about computers, about new technology, about mass media and, perhaps above all, about the way we view children. There is no doubt that computers do have the potential to change the whole way we think about formal schooling. Lifelong education and the concept of training could be a part of the renegotiation that will be needed if computers are to be a positive force in the formal education of all people.

It could be used to minimise the impact of the past patriarchal, racist, sexist, imperialist and conservative ideology that permeates our literature and our modes of formal education, (Smith and Sage, 1983).

However, as we re-write the curriculum to include computers or, more importantly communications and information technology, the potential comes not from the technology alone, but from our use of it. One might argue that, with this increasingly complex communications and information technology, it will be even more important to have good reading and writing skills. To access electronic libraries, to decode complex symbols, to understand new modes of language and to facilitate our use of the many worldwide databases increasingly available, a language other than our native tongue would be a minimum requirement.

Childhood, if defined by some kind of "symbolic" achievement, that is, learning to read, will still be with us. However, childhood is a concept of adult perception and is clearly dynamic and unstable. The great danger is that we change our view of childhood, not to benefit children, but to simply fit an economic or political need. The general direction of computer education at present seems to have as its aim the production of computer consumers, not literacy, and certainly not knowledge about information technology. Outrageous claims are being made about the efficacy and worth of computers in promoting learning in children. The technological determinists seem to have forgotten that how children learn is as much a philosophical and historical question as it is a product of current technological development and educational practice.

One cannot help but conclude that the promise of Silicon Valley cannot hope to match the contribution of 300 years of the Gutenberg press to formal schooling. The concept of childhood and its relationship to formal education will not be changed by computers. But both adults and children will be changed, ignored, confused, cheated and educationally deprived, if control of the new information technology remains locked securely within a profit-making, secretive, non-sharing, increasingly narrow group of technological elites.

REFERENCES


