The Growth of Enterprise Pedagogy: How ICT Policy is Infected by Neo-liberalism.

DR MARK BROWN

Massey University
New Zealand

BIOGRAPHY

Dr Mark Brown is a Senior Lecturer in the College of Education at Massey University, New Zealand. His research interests include e-learning, the use of information and communication technology (ICT) in education, and the study of new innovations in teaching. He is a trained primary teacher and an Apple Distinguished Educator. Mark coordinates two specialised postgraduate qualifications in the study of Educational Technologies and is currently responsible for Doctor of Education (EdD).
His email address is [m.e.brown@massey.ac.nz]

ABSTRACT

This paper locates the current technology related school reform movement in the backdrop of growing international debate and illustrates through discourse analysis why teachers and teacher educators need to engage in deeper levels of critical dialogue over the move to plug schools into the so-called knowledge economy. The objective is to raise awareness of the tensions, hidden curriculum and non-educational intentions enmeshed within recent efforts to transform schooling through the so-called new ways of (e)learning. Overall, the (e)learning movement is shown to be highly problematic and under the influence of neo-liberalism the emphasis on enterprise pedagogy may be steering the teaching profession further away from the real goals of education.

INTRODUCTION

This paper challenges some of the taken-for-granted assumptions about the potential of information and communication technology (ICT) in schools. In this context, the term ICT refers to the latest wave of policy initiatives that promote the adoption and implementation of new digital technology for learning and teaching purposes. The paper attempts to raise awareness of false consciousness by showing how the current drive to 'wire' and 'mobilize' Australian schools is highly problematic. It is far more problematic than is evident in most professional magazines, education conferences, and state and national policy briefs, which typically celebrate the benefits of new digital technology in schools.

There are two parts to the paper. In the first section, the growth of ICT in schools is located in the backdrop of wider debate surrounding the role of new digital technology in education. This debate must be taken seriously in the face of several high profile attacks on the use of computers in schools. The second part of the paper illustrates how the ICT-related school reform movement has been dominated by celebratory discourses. It shows how the Australian and New Zealand policy discourse lacks critique and the overselling of ICT has been at the expense of deeper intellectual debate over the way in which new digital technologies may affect teachers' lives and work culture—for better and worse.

The article walks a narrow path. On the one hand, it is highly critical of the hidden curriculum and non-educational intentions behind the growth of ICT in schools. At the same time, concerns raised about the ICT-related school reform movement should not be construed as further ammunition for a neo-conservative backlash. The position advanced is not neo-conservative. In this regard, the paper goes beyond simple dichotomies of illusory hype versus pessimistic Armageddon (Abbott, 2001) as ICT is neither demon nor panacea. Such binary positions underestimate the complexity of and dynamic tensions within the new digital landscape (Brown, 2003).

The main objective is to question some basic assumptions about why ICT is so important within Australian schools. A critical perspective is offered not so skewed by the hyperbole associated with new digital technology. This perspective argues that more critical dialogue is required in the development of educational policy before blind faith in the potential of the ICT—cloaked in the language of new ways of (e)learning—steers the teaching profession further away from the time-honored goals of education—that is, promoting equity, fairness and social justice.

The technology debate

In all of its manifestations, ICT is part of a new epoch of human civilization. It has huge implications for schools and enormous potential as a pedagogical innovation. This is without dispute. However, the growth of ICT is far more problematic than is typically acknowledged by the proponents of the so-called Digital Age. The words of C.P. Snow (1971; cited in Owen, 2004) spring to mind, 'Technology… is a queer thing. It brings you great gifts with one hand, and it stabs you in the back with the other'. In a similar vein, Rosen (1998) reminds us that 'every great transformation leaves social debris in its wake' (p.37).

Thus, not surprisingly, there has been a steady rise in the number of people questioning the wisdom of the substantial investment in new digital technology. One of early critics, Armstrong and Casement (1998), claim that it is scandalous so much money has been allocated for computers and Internet access with so little serious evaluation. In their view:

A generation of children have become the unwitting participants in what can only be described as a huge social experiment (Armstrong & Casement, 1998, p.2).

At the time of this comment, they observed that our insatiable appetite for new digital technology is such that one would think nothing else worthwhile is happening in schools. Although no empirical evidence was offered to support this conclusion, Armstrong and Casement (1998) believe some basic questions about the educational value of computers remain unanswered. In their words, we still suffer from "illusions of progress".

In 1997, the level of public concern over the ICT movement was heightened when the *Atlantic Monthly* attacked the spurious evidence supporting the computer delusion in schools (Oppenheimer, 1997). After a thorough investigation of the literature Oppenheimer (1997) concluded:

There is no good evidence that most uses of computers significantly improve teaching and learning… (p.45).

Over the years this claim has been used and abused by many critics. While there is a grain of truth in the conclusion, it exaggerates the evidence in the opposite direction (Reeves, 1998). Such a blanket statement gives insufficient attention to the instructional context, as the computer is not a monolithic machine that teachers use in a uniform manner. Put bluntly, most educators know it is technocentric to think that ICT alone can significantly improve learning; it depends on the context. This is a vital point Oppenheimer (1997) fails to acknowledge in his critique.

What he also fails to acknowledge is 'that such pedagogical enhancements would often be impossible without the capabilities of new technology' (Reeves, 1998, p.52). Therefore, Oppenheimer's infamous attack on the use of computers in schools contains some serious flaws. Despite these, the *Computer Delusion* article helped to fuel a neo conservative backlash against the use of new digital technology in schools, which has gained renewed momentum since publication of *The Flickering Mind: The False Promise of Technology in the Classroom and how Learning can be Saved* (Oppenheimer, 2003).

Although the tendency is to dismiss these attacks as uniformed and poorly researched analyses of the ICT-related school reform movement, such publications contribute greatly to further critical analysis. *The Flickering Mind* was a timely reminder of the need for teachers to continually question and justify the faith they place in new digital technology. In this regard, attacks on the use of computers in schools offer teachers a rich source of critical reflection. They should not be dismissed out of hand, as they help to bring the spotlight on the fragility of the pedagogical rationale and the serious flaws of the social, economic and vocational rationales, which together combine to form the language of persuasion championing the educational use of technology.

In terms of the pedagogical rationale, Oppenheimer (2003) ably supported by Cuban (2001), Ferneding (2003), Selwyn (2002), and so on, have raised serious questions about the overselling of new digital technology. Such critics have brought attention on an alternative body of literature claiming that computer use may be detrimental to our brains, bodies and spirits (Healy, 1998). This type of analysis, which often lacks solid research evidence, is supported by Stoll (1999) who argues that computers send the

wrong message by making learning appear colourful and fun when it actually requires hard work and discipline. On the surface, this observation may resonate well with some parents and teachers but there is an element of a new moral panic embedded in this recall to the protestant work ethic.

A similar reactionary response to the appeal of new digital technology is evident in the controversial *Fool's Gold* report on the use of ICT in early childhood education. Cordes and Miller (2000) claim 'The computer—like the TV—can be a mesmerizing babysitter' (p.3). Once again, there is an element of truth in this report but what the authors fail to acknowledge is that teachers can use ICT to enhance the holistic goals of early years education (Abbot, Lachs & Williams, 2001). This oversight is repeated in last year's follow up *Tech Tonic* report (Alliance for Childhood, 2004) which claims 'there is scant evidence of long-term benefits—and growing indicators of harm—from the high-tech life style' aggressively promoted by business and government (p.1). Although these two reports contain some salient lessons for policy-makers, ironically many of the critics of ICT are guilty of assigning too much attention to the technology itself, which is precisely what they accuse the proponents of the digital revolution of doing.

In spite of this criticism, on another front, Oppenheimer (2003) reminds us that it is extremely shortsighted to focus on today's idea of what tomorrow's jobs will be. Stoll (1999) takes the critique of the vocational rationale—a growing proportion of the workforce will require computer skills—one step further by illustrating how the adoption of new digital technology has resulted in the deskilling of many jobs. Arguably, most so-called "hi tech jobs" involve little more than passing a six pack of Victoria Bitter over a bar code scanner in the supermarket. Far from being skilled technicians, the vast majority of computer operators are nothing more than typists doing mundane repetitive work (Armstrong & Casement, 1998). This line of argument requires further empirical analysis but it suggests the ICT movement has created the demand for a large technical class that is highly trained to do mind-numbingly boring work (Roberts, 1998; cited in Healy, 1998). Of course, the counter argument is that everyone needs a job and previous forms of work have not always been personally rewarding and intellectually challenging.

But as a powerful icon of the new knowledge economy, Kirkpatrick and Cuban (1998) question whether the current status of ICT in schools will help create the type of critically informed students and citizens we seek. They point out that schools are not simply agents of social and cultural reproduction where future workers learn how to earn. Instead, ICT should be used to develop a new kind of digital curriculum where students learn how to be critical thinkers, critical consumers and critical citizens (Brown, 2005). In a powerful analogy, Postman (1996) draws a parallel between the computer and the invention of the motor vehicle:

What we needed to know about cars—as we need to know about computers, television, and other important technologies—is not how to use them but how they use us (p.44).

Postman (1996) writes what we really needed to think about when the motor vehicle was first invented was not how to drive them but what they would potentially do to '…our air, our landscape, our social relations, our family life, and our cities' (p.44). This analogy

The growth of Enterprise Pedagogy

strikes at the heart of the lack of critical debate surrounding the adoption of new digital technology in schools. It shows that the car is not simply an internal combustion engine with seats in a steel casing on wheels (Henwood, et al., 2000). Indeed, whether people own cars at all, and if they do, their ages, makes, and colours all provide meaning for them and others about who they are and what they value.

The lesson is ICT, just like the motor vehicle, is an inherently value-laden cultural artifact that must be understood as a social practice. Nonetheless, the metaphor of the computer as neutral learning tool is widespread throughout the teaching profession. This metaphor reflects a form of social or cultural determinism in which the way the tool is used is far more important than the tool itself (Ferneding, 2003). There is no conception of the tool as having an effect—both good, bad and unknown—over and above how teachers use it. As Burbles and Callister (2000) write:

> Tools do not only help us accomplish (given) purposes; they may create new purposes, new ends, that were never considered before the tools made them possible. In these and other ways tools change the user: sometimes quite concretely, as when the shape of stone tools became a factor in the evolution of the human hand (…). Tools may have certain intended uses and purposes, but they frequently acquire new, unexpected uses and have new, unexpected effects. What this suggests is that we never simply use tools, without the tools also "using" us (p.6).

It follows that the conception of technology as progress—the second dominant metaphor of ICT in the literature—has been challenged seriously in the context of this observation. So, clearly, considerable debate exists in the literature over the growth of new digital technology in schools. There are serious concerns and well-articulated arguments both for and against the ICT-related school reform movement. In the backdrop of this debate, irrespective of one's position, the status of ICT in education is contestable and must be viewed by teachers, teacher educators and policy-makers as problematic.

Lack of professional debate

This section shifts the technology debate to the state and national policy context. In light of the above debate, the paper explores the following question: How is the contested and problematic nature of ICT reflected in the Australian and New Zealand policy discourse? More straightforwardly, how does this debate manifest itself within state and national ICT policy initiatives?

In answering this question, the basic assumption is that *policy* is inherently about politics, power and social control (Codd, 2005). Put another way, policy texts tell a story in which not everyone's voice is heard or recognised as legitimate. Thus, the concept of hegemony—in which dominant groups in society seek to establish the common sense, define what counts as legitimate areas of agreement and disagreement, and shape the political agendas made public and discussed as possible (Apple, 2003)—is central to reading and deconstructing the policy landscape. In Foucault's terms, the aim of this section is to unmask the dominant voices, power relations and ruling ideologies in policy that reflect (and shape) the discourse surrounding the growth of ICT in schools so that we can fight them.

Beginning with New Zealand, a closer look at *Digital Horizons,* the national ICT strategy for schools, reveals the uncritical acceptance and cultivation of the tool metaphor. In *Digital Horizons* The Honorable Trevor Mallard, Minister of Education writes:

> The Government has been quick to seize on the importance and practical benefits of digital technology as a key tool for 21st century teaching and learning (Ministry of Education, 2003, p.2).

In keeping with the pragmatism of Third Way politics, there is no acknowledgment of the non-neutrality of new digital technology. The potential negative and unanticipated effects of ICT receive no consideration. Not only have politicians and policy-makers actively promoted the tool metaphor it is highly misleading in the 2002-2004 iteration of the national ICT Strategy to read:

> The expansion of ICT is driving significant changes in many aspects of endeavour throughout the world (Ministry of Education, 2003, p.6).

Such technological determinism conveys a sense of inevitability that as technology changes so society follows. While ICT is having a dramatic effect, this statement ignores the powerful external forces that are partly behind the drive to equip students and workers with new types of digital literacy. The growth of ICT is not on an independent trajectory (Clegg, Hudson & Steel, 2003), as it is intertwined deeply with the globalization movement, the rise of neo-liberalism, the celebration of technology consumption, and ecologically destructive cultural patterns (Bowers, 2000). Put bluntly, the expansion of ICT in the context of these global forces is potentially brutal and socially destructive.

Yet, the New Zealand policy discourse continues to treat ICT as unproblematic. In 2004, the *Schooling Strategy Discussion Document* states that:

> To "future-proof" schooling, the government is currently committed to… continuing to support teachers, school leaders and boards of trustees to realise the learning opportunities presented by new technologies, through the ICT Strategy (Ministry of Education, 2004, p.25).

One could equally argue that the concept of future-proofing in the context of ICT is an oxymoron. You only have to look at the relatively short life of these ICT strategies. The problem is that politicians and policy-makers are presenting the adoption of ICT as one of the solutions to future proofing when technology consumption is a major barrier to long-term sustainability. Once again, rather than problematise the ICT movement the latest pan sector *Digital Strategy* jointly written by a number of government departments states:

> *The Digital Strategy is about how we will create a digital future for all New Zealanders, using the power of information and communication technology (ICT) to enhance all aspects of our lives. In the digital future lots of things will change for the better (New Zealand Government, 2005, p.4).*

While ICT does offer tremendous potential and the above vision acknowledges the need for all New Zealanders to enjoy the benefits of the digital future, the strategy forecloses on a number of alternative futures. Whose future is being promoted and for what purpose? To date the policy texts ignore the way in which some new digital technologies inhibit as well as enable progress toward the elusive goal of creating a more democratic knowledge society. In the post 9/11 environment, for example, a fundamental tension exists between ICT as a means of social control as opposed to being a truly liberating technology for greater freedom and expression. So, the key question is whose vision or conception of the future is promoted through the current New Zealand policy language?

In Australia, this question is more difficult to answer as policy texts operate at the national, state and territory level. At the national level, however, a shared vision exists that in theory complements rather than competes with the outlook of state systems. In March 2000, building on the Adelaide Declaration, the Ministerial Council for Employment, Education, Training and Youth Affairs (MCEETYA) endorsed *Learning in an Online World* (Schools Advisory Group, 2000). This policy framework states that:

> *All students will leave school as 'confident, creative and productive users of new technologies, including information and communication technologies, and understand the impact of those technologies on society' (Schools Advisory Group, 2000, p. 3).*

In contrast to New Zealand, there is greater recognition of the need for students to understand how ICT might affect society—one assumes for better and worse. That said, the subtitle of this policy initiative—*School Education Action Plan for the Information Economy*—does not encourage students to go beyond 'understanding' by adopting a course of action that might build a more socially just future and very different type of global economy than the troubled one that exists today. In short, *Learning in an Online World* appears to promote the goal of active participation in the knowledge economy rather than critical education *for* citizenship. As Codd (2005, p. xv) writes, economic objectives appear to have replaced citizenship as the primary political purpose of public education.

This point is illustrated in the material produced by The Le@rning Federation under the direction of MCEETYA of which New Zealand is now a member. The Le@rning Federation was established in 2001 to produce online curriculum materials—that

is, learning objects and digital repositories—and make available to schools throughout Australia and New Zealand. Notably, *Innovation, Enterprise and Creativity* was selected as a priority curriculum area for resource development, which can be critically read from the *Biz Whiz* example in Figure 1 as the antithesis of promoting the goals of equity, fairness and social justice. There is no indication of how this new kind of digital resource will help encourage greater social inclusiveness and democratic citizenship. The following quote illustrates how The Le@rning Federation initiative has been framed in the language of neo-liberalism—that is, policies of decentralization, marketisation, privatisation, and the general subordination of education to economic objectives—to promote entrepreneurial flair as opposed to stewardship and moral responsibility:

> *The innovation, enterprise and creativity online curriculum content is designed to produce rich interactive multimedia learning resources and tools that enable students in years P-10 to engage in learning experiences that enhance their capacities and skills to be innovative, creative and entrepreneurial (The Learning Federation, 2005a, p.1).*

Figure 1: Biz Whiz Digital Object (The Le@rning Federation, 2005b)

This type of digital learning resource comes under the umbrella of the new *Pedagogy Strategy* (MCEETYA, 2005), which is the latest iteration of national ICT policy for both Australia and New Zealand. It needs to be noted that the *Pedagogy Strategy* has no official status in New Zealand and the influence of MCEETYA beyond Australia remains unclear. That aside, this latest policy text aims to provide a set of strategic principles and an agreed framework for developing innovative pedagogies that exploit the opportunities of learning in an online world. The *Pedagogy Strategy* claims to outline the type of the professional support and leadership required to ensure teachers develop their confidence and capability in utilizing ICT to create new learning possibilities. While these possibilities are very real and the adoption of the term 'pedagogy' reflects a significant shift of emphasis, the meaning of this term is somewhat disconnected from its rich critical tradition. For example, the strategy states:

How ICT policy is infected by Neo-Liberalism

Pedagogies that integrate information and communication technologies can engage students in ways not previously possible, enhance achievement, create new learning possibilities and extend interaction with local and global communities (MCEETYA, 2005, p.2).

Arguably, there is an apolitical conception of pedagogy embedded in this statement. The consideration of pedagogy cannot be removed from issues of power and social control as no pedagogy is benign. This point is illustrated by the latter reference to local and global communities. A key tension exists in interactions between such communities as the ability to retain a strong sense of local identity and culture is problematic in the face of globalization. After all, no community is neutral. The reason many people oppose globalization is that a predicted outcome is the loss of nation-state sovereignty, the erosion of local autonomy, and a weakening of the definition of the "citizen" as a unifying concept characterized by precise roles, rights, and obligations (Olssen, Codd, & O'Neill, 2004).

Indeed, the *Pedagogy Strategy* is a fine example of the new 'global policyscape' (Selwyn, 2004) in action as this top down bi-lateral initiative appears to have had little input from rank-and-file teachers. Once again, teachers are treated as policy consumers rather than policy producers. This important distinction raises the problem of alignment with local needs and illustrates how the current policy formation process is not an educative one engaging teachers in professional dialogue around deeper ethical, moral and political questions. Teaching is inherently a political activity and the policy choices we make of what to emphasize in the curriculum are political decisions. As Connell (1995; cited in Smyth et al., 2000) puts it:

There is a sense in which virtually everything about teaching is political… Teachers cannot choose to be non political (p.7).

At the state level, however, an apolitical conception of teaching is evident in most ICT-related government policy texts. By and large teachers are conveyed as the education workers whose role is to implement rather than critique government policy. Arguably, the policy language has borrowed the new science of learning to advance a very different kind of education than one rooted in equalitarian values of equality of opportunity and democratic citizenship. While in danger of gross over generalization, there is little or no appreciation of how ICT is the digital lubricant of fast capitalism and the globalization movement. For example, in Queensland the recent *School Information Kit 2004-2005* entitled *ICTs for Learning* (Education Queensland, 2004) continues to promote the neutral learning tool metaphor. The Honorable Anna Bligh, Minister of Education, writes:

This is a three-year transition strategy to support teachers and schools in creating the conditions where information and communication technologies (ICTs) are integrated as everyday tools for learning and delivering curriculum (Education Queensland, 2004, p.4).

In sum, to answer the original question there is largely no acknowledgement of the contested and problematic nature of ICT in the policy discourse. The key point is that most politicians and policy-makers appear to be enamored with the seductive appeal of what ICT can do *for* us (Nash & Moroz, 1997) and they give little or no attention to the unknown and potential negative effects of what new digital technology might do *to* us. The overriding impression is that teachers should be embracing ICT rather than critically thinking about the way in which the new pedagogy acts as a language of persuasion to legitimize someone else's hegemonic agenda. While the different and many faces of capitalism and globalization are not all bad, the new ways of (e)learning through ICT are infected by the ideological language of a kind of "enterprise pedagogy"—that is, the celebration of innovation, entrepreneurship and learning for the real (unjust) world. As a result, a lot of misinformation, dissembling language and even propaganda is preventing teachers from understanding the tensions, hidden curriculum and non-educational intentions of the ICT-related school reform movement.

Teaching is inherently a political activity and the policy choices we make of what to emphasize in the curriculum are political decisions.

CONCLUSION

The growth of ICT in schools is problematic. There are complex forces behind the drive to reform schools through ICT and rather than be lured by the political and economic spin of new digital technology the teaching profession needs to create a culture of activism and reconceptualism. Such a culture needs to ask the following types of questions:

- Who is telling the ICT story and why?

- How are they telling the ICT story?

- What is it they are telling / promoting about ICT?

- How are different people understanding and responding to the ICT message?

- What is missing? Whose voice is not being heard? Whose story is not being told?

By asking these questions, teachers may go some way to reclaiming the true status of pedagogy in their respective education systems. In repoliticising pedagogy, teachers need the courage to redesign the curriculum around controversial issues that address the most basic questions of purpose and meaning. What kind of society do we want? What is the meaning of citizenship in the Digital Age? What are the real problems confronting the world that need solutions? What conditions must politicians and policy-makers provide if the Australian way of life is to be fair, equitable and sustainable? Such questions bring issues of critical citizenship, democratic community, and social justice to the forefront of discussion. The implication is that ICT professional development must raise teachers' political awareness and critical consciousness such that pedagogical activism and democratic curriculum reform becomes a moral imperative. As Fullan (1993) writes:

Moral purpose without change agentry is martyrdom; change agentry without moral purpose is change for the sake of change (p.14).

REFERENCES

Abbott, C. (2001). ICT: *Changing education.* London: Routledge/Falmer.

Abbott, C., Lachs, V., & Williams, L. (2001). Fool's gold or hidden treasure: Are computers stifling creativity? Journal of Education Policy, 16 (5), 479-487.

Alliance for Childhood. (2004). *Tech tonic: towards a new literacy of technology*. Retrieved 12 February, 2005 from http://www.allianceforchildhood.org

Apple, M. (2003). *The state and the politics of knowledge.* New York: RoutledgeFalmer.

Armstrong, A., & Casement, C. (1998). *The child and the machine: Why computers may put our children's education at risk.* Ontario: Key Porter Books.

Bowers, C.A. (2000). *Let them eat data: How computers affect education, cultural diversity, and the prospects of ecological sustainability.* Athens, Georgia: The University of Georgia Press.

Brown, M. (2005). Telling tales out of school: The political nature of the digital landscape. In K-W Lai (ed.), e-*Learning communities: Teaching and learning with the Web* (pp. 23-38). Dunedin: Otago University Press.

Brown, M.E. (2003). Beyond the digital horizon: The untold story. *Computers in New Zealand Schools,* 15 (1), 34-40.

Burbules, N., & Callister, T. (2000). *Watch IT: The risks and promises of information technologies in education.* Boulder, Colo: Westview.

Clegg, S., Hudson, A., & Steel, J. (2003). The Emperor's new cloths: Globalization and e-learning in higher education. *British Journal of Sociology of Education,* 24 (1), 39-53.

Codd, J. (2005). Education policy and the challenges of globalisation: Commercialisation or citizenship? In J. Codd (ed.), *Education policy directions in Aotearoa New Zealand* (pp. 4-17). Southbank, Victoria: Thomson Dunmore Press.

Cordes, C., & Miller, E. (2000). *Fool's gold: A critical look at computers in childhood.* Maryland: Alliance for Childhood. Retrieved 14 March, 2001 from http://www.allianceforchildhood.net/projects/computers/computers_reports_fools_gold_contents.htm

Cuban, L. (2001). *Oversold and underused: Computers in the classroom.* Cambridge, MA: Harvard University Press.

Education Queensland. (2004). *ICTs for learning: School information kit 2004-2005.* Department of Education and the Arts, Coorparoo, Queensland. Retrieved 18th March, 2005 from http://www.education.qld.gov.au /ictforlearning

Ferneding, K. (2003). *Questioning technology: Electronic technologies and educational reform.* New York: Peter Lang Publishing Inc.

Fullan, M. (1993). Why teachers must become change agents. *Educational Leadership,* 50 (6), 12-17.

Healy, J. (1998). *Failure to connect: How computers affect our children's minds—for better and worse.* New York: Simon and Schuster.

Henwood, F., Wyatt, S., Miller, N., Senker, P. (2000). Critical perspectives on technologies, in/equalities and the information society. In S. Wyatt, F. Henwood, N. Miller & P. Senker (Eds.), *Technology and in/equality: Questioning the information society* (pp.1-18). London: Routledge.

How ICT policy is infected by Neo-Liberalism

Kirkpatrick, H., & Cuban, L. (1998). Computers make kids smarter – right? *Technos Quarterly for Education and Technology,* 7 (2), 1-11.

MCEETYA. (2005). *Pedagogy strategy: Learning in an online world.* Carlton South, Victoria: Ministerial Council for Employment, Education, Training and Youth Affairs (Australia and New Zealand). Retrieved 20th June, 2005 from http://icttaskforce.edna.edu.au/strategy/index.html

Ministry of Education (2004). *Making a bigger difference for all students: Schooling strategy discussion document.* Wellington: Medium Term Strategy.

Ministry of Education (2003). *Digital horizons: Learning through ICT – A strategy for schools, 2002-2004* (revised version). Wellington: Learning Media.

Nash, J., & Moroz, P. (1997). An examination of the factor structures of the computer attitude scale. *Journal of Educational Computing Research,* 17 (4), 341-356.

New Zealand Government. (2005). *The digital strategy: Creating our digital future.* Wellington, New Zealand.

Olssen, M., Codd, J., & O'Neill, A-M. (2004). *Education policy: Globalization, citizenship and democracy.* London: Sage Publications.

Oppenheimer, T. (2003). *The flickering mind: The false promise of technology in the classroom and how learning can be saved.* New York: Random House.

Oppenheimer, T. (1997). The computer delusion. *The Atlantic Monthly,* 280 (1), 45-62.

Owen, M. (2004). *The myth of the digital native.* Retrieved 12 February 2005 from http://www.nestafuturelab.org/viewpoint/art26.htm.

Postman, N. (1996). *The end of education: Redefining the value of school.* New York: Random House.

Reeves, T. (1998). 'Future schlock,' 'the computer delusions,' and 'the end of education': Responding to critics of educational technology. *Educational Technology,* 38 (5), 49-53.

Rosen, B. (1998). *Winners and losers of the information revolution: Psychological change and its discontents.* London: Praeger Publishers.

Schools Advisory Group. (2000). *Learning in an online world: School education action plan for the information economy.* Adelaide: Education Network Australia. Retrieved 16 October, 2002 from http://www.edna.edu.au/edna/file12665

Selwyn, N. (2004). Rethinking the 'computers-in-schools' policy cycle. *Computers in New Zealand Schools*, 16 (2), 8-17.

Selwyn, N. (2002). Learning to love the micro: The discursive construction of 'educational' computing in the UK, 1979-89. *British Journal of Sociology of Education,* 23 (3), 427-443.

Smyth, J., Dow, A., Hattam, R., Reid, A., & Shacklock, G. (2000). *Teachers' work in a globalizing economy.* London: Falmer Press.

Stoll, C. (1999). *High-tech heretic: Why computers don't belong in the classroom and other reflections by a computer contrarian.* New York: Double Day.

The Learning Federation. (2005a). *Learning objects catalogue: Innovation, enterprise and creativity.* April 2005. Retrieved from http://www.thelearningfederation.edu.au/tlf2/showMe.asp?nodeID=79#group

The Learning Federation. (2005b). *Sample learning objects 2005* [CD-ROM]. EQ Australia, Spring Issue. Curriculum Corporation.