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## **E-Learning pedagogy in the Primary School Classroom: the McDonaldization of Education**

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*Abstract: This paper begins as an initial rejoinder to the ideas expressed by Ross (2000) in *The Promise and Perils of E-Learning: A critical look at the new technology*. In his article, Ross supports the traditional practices of pedagogy at the primary school level—face-to-face pedagogy—and then critiques what he describes as a ‘fetishisation’ of technological pedagogy—a fetishisation seen in the increase of E-learning pedagogy at the primary school level. The ideas expressed in this article gain their structure and momentum from Ross’s (2000) arguments against E-learning and extends a more cautious approach to the widespread belief in the success of E-learning pedagogy. The main thesis is that E-learning spawns numerous problems for primary students—namely a homogenisation and dehumanisation. This ultimately leads to what Ritzer (2000) calls a ‘McDonaldisation of education’.*

### **Introduction**

This article provides a more radical, rather than conservative philosophical inquiry of E-learning pedagogy at the primary school level. What this paper does not do is inform on a technical level; rather issues of a philosophical nature are considered. Moreover, it does not have any pretensions of being a comprehensive study detailed in every respect. Rather the style and method of this article is impressionistic and panoramic. Supporting but also extending Ross’ argument, this paper rejects what it considers a naïve optimism of employing E-learning in all domains of learning and contends that E-learning pedagogy is highly problematic in a number of areas at the primary school level, although is geared well to higher education or business enterprise.

Education is one of the most debatable topics in Australia and so it should be. With limited time and limited resources the nation’s future and its people depend on the efficiency of schools, colleges and universities (Donnelly, 2007). Efficiency in the classroom require learners to access information faster and easier—and computers and their associated software can deliver instructional programs and information fast, covering virtually any area of the curriculum and geared to any age or ability level (Westwood, 2008). Although our understanding of how students interact or make sense of vast stores of information delivered at rapid speed is limited.

Recent policy initiatives in Australia have focused on promoting teaching and learning in schools, with a large investment in information and communication technology (ICT) and particularly with computers. As part of their classroom activities, students are increasingly encouraged and required to use computers to locate and use information, or work on commercial programmed software. For

example, educational software, developed by supposed “education experts”, include titles and promises as: ‘Maths POWER Tutoring Software... 100% guaranteed! Just \$2 per lesson; a spectacular animated time-travel adventure to help your child head straight for the top’. Consequently, educators are increasingly aware of the potential and practicalities of using computer assisted learning in the primary classroom and in many circumstances have adopted it as just another pedagogy (Mioduser, Nachmias, Lahav & Oren, 2000).

One branch of technology which has gained much promise is E-learning. Chen, Lin and Kinshuk (2004) note that E-learning is immediately embraced by almost every educational institution as a positive step towards improving performance, learning, speed, flexibility, versatility, interactivity and ultimately enabling learners to be more autonomous. As a result there is a widespread and unproven expectation that E-learning will prove to be the medium for greater learner control and interactive experiences for students.

Reeves (2008) in his article, *Evaluating what really matters in computer-based education*, suggests there are several reasons for this idealistic enthusiasm and lack of evaluation. First, the consumers of technological innovations for education such as principals, teachers and parents, assume that because these innovations are advertised as effective, they are effective, yet there is little if any research to support this assumption. Second, evaluation has often been reduced to a numbers game wherein the value of technology is represented by 1) the amount of money spent on hardware and software, 2) the ratio of students to computers, or 3) the amount of time students have access to technology within a school day, week, month, or year (Becker, 1992). A third reason for the lack of the evaluation reports is because they are usually presented in the format of social science research reports, a format that ‘is almost useless for most clients and audiences’ (Scriven, 1993, p. 77).

Evaluation presented in the format of social science research reports is a problem that also bedevils teachers. Widely reported in the literature and commonly known as the ‘research-practice gap’; it has been well documented that teachers rarely directly implement academic social science research reports produced by universities in their pedagogy. Research by Hirschhorn & Geelan (2008) suggests that the main reason is because social science research is published in obscure language, in obscure journals and avoids all discussion of practical implications of their work. It has been pointed out by Druik (1995) that what teachers are influenced by are high powered in-service sessions delivered from well spoken business entrepreneurs pushing glossy and well packaged software programs for children with the promise of educational success and fulfilment.

There is no doubt that the introduction of E-learning to primary schools has been one of the most significant developments for teachers and students, yet it seems to have had little effect on the way teachers teach (Kennewell, Tanner, Jones & Beauchamp, 2007). This is difficult to understand if indeed E-learning is the new literacy characterised by globalisation and the new economy (Stokes, 2000). If E-learning is the new medium deemed to provide a new form of social interaction why have we seen minimal changes to teachers’ pedagogical practices? As a former educator and someone who has personally and professionally focused on exploring the value and impact of E-learning on education, this question becomes the focus of this study. Is E-learning the ‘new form of social interaction’ or just another pedagogic experience? This matters because E-learning has increased student self-direction and autonomy which means that students need to take more responsibility for their own learning, but as McLoughlin (1999) notes, many students need regular assistance in

achieving these new skills. Moreover this critique gains momentum from the very fact that *all* learning experiences are unproven until they have been thoroughly evaluated—well before they could be judged as reliable, appropriate or even adequate for children (Trindade, Carmo & Bidarra, 2000).

At present, E-learning is placed into two categories: *synchronous* and *asynchronous*. Synchronous E-learning imitates a classroom, which entails classes taking place in real-time and connecting instructors and students via streaming audio or video or through a chat room. Asynchronous E-learning lets students' access pre-packaged software on their own time, working at their own pace and communicating with a cyber- instructor or even other students through e-mail. In addition, asynchronous E-learning is reflected by school student's use of the Web; practises which involve students connecting to and downloading information. In this paper it is the *asynchronous* method of E-learning which is assessed under the consideration of appropriateness and consequences.

The number of *asynchronous* E-learning program offerings in the primary school curriculum has increased dramatically, due to the ease with which schools and teachers can purchase customized E-programs to fit their curriculum needs. The responsibility for their popularity is that they are flexible, customizable, easy to use and most importantly, cost efficient.

In this article the thesis is that a large scale expansion of E-learning pedagogy in the primary school classroom will undoubtedly alter the forms, function and values of schooling and education in negative ways. Similar to Blake & Standish (2000) a technological web based school classroom will revise and challenge the conception of student's independence, especially the nature of teachers and teaching—therefore, E-learning pedagogy must be critiqued against the backdrop of the good practice of face- to- face teaching.

### **The challenges ahead**

The challenges of E-learning are many; the solutions are few. Arguments for E-learning are sometimes presented in the rhetorical discourses of 'life long learning' and 'flexibility' two dubious concepts that relate to global learning. In Australia the government has promised to revitalise the education system using what they brand as the 'educational digital revolution'. The promise is to deliver computers and internet access to school students - even though there is little, if any research evidence supporting the benefits of computers in schools, there will be an investment of \$1 billion over four years in a move to turn every school in Australia into a digital school. This could include personal laptops or additional desktop computers, thin clients with virtual desktops and internet network infrastructure to help plug our schools into the 'information superhighway' (Official Website of the Australian Labor Party, 2007). Under the government's plan for secondary schools the following is promised:

Ninety nine per cent of school children will also get access to broadband ...the other one per cent of students will get improved access at school, via the best available fixed line, wireless and satellite technologies. Every secondary student in Australia will graduate into a digital world and a digital economy: that means every secondary school in the country needs to be a digital school. To stay

competitive in a digital economy, Australia must accept the fact that computer technology is no longer just a key subject to learn, it is now the key to learning in almost every subject. (Federal Labor's Education Revolution - A School Computer for Every Student in Years 9-12)

There is indeed much anticipation and promises made in the name of computer technology. Like the Australian Government, supporters of computer technology, E-learning and the World Wide Web in general anticipate an increase in learning speed, cost effectiveness, technological transformation, and mediated human interactions (Steel, 2000). Consequently, its successes are ideally geared towards business ventures such as a reduction in spending costs in corporate training—ultimately profiting business endeavours rather than improving education (Eklund, Kay & Lynch, 2003).

Blake & Standish (2000) note that advocates of E-learning have often (mistakenly) highlighted the apparent cheapness and efficiency of the internet as a medium for delivering educational materials and are frequently cited as indices of even democratic value, opposed to the putative elitism of face to face teaching; however, as Steel (2000) cautioned, within the fetishization of technology and knowledge as a commodity which serves certain functions under capitalism, knowledge becomes an ideology that in fact helps reinforce division in society, as the status quo is left unchallenged—therefore democracy is somewhat an illusion (Steel, 2000).

In consideration of the technological environment outlined and in particular, the education and schooling of young children, the appropriateness of a radical critique of web pedagogy is both imminent and necessary. Moreover, as E-learning continues to be a significant leading contender in the schooling of young children, a timely assessment presents itself to compare a technological cost efficient learning experience, juxtaposed with the 'messy' human interactions of education, sharing and experimental learning experiences (Rosenberg, 2001).

The only certainty that technology can promise to those who both need and desire it, is that as a learning medium it will continue to undergo dramatic and continual change. When technologies are involved the continuing evolution of E-learning is happening at a rate that could be described as stupendous (Chadha & Kumail, 2002). The changing nature and improvement of technology as a significant learning tool, is considered by many to be such a good medium of learning that it has not only threatened the edifice of the traditional classroom system, but also opened a whole new world of possibilities...to provide cost effective, anytime, anywhere and self paced learning (Chadha & Kumail, 2002).

Initially this paper was promoted by my own observations of technology in the classroom over the last decade as a primary school classroom teacher. The debate between teachers over technology has been a long one—should computers, the medium in which E-learning is delivered, be confined to a separate room—often called a computer lab, or should it be integrated into the classroom? Although there has been no definite conclusion, what has become apparent is that primary schools have decided for themselves what suits them best.

The rapid changes that web based learning were having on the contexts of the classroom were inspiring yet at the same time the enthusiasm in which the students regularly displayed when informed of an upcoming computer experience also brought a scepticism to the favouring of one medium of learning over the other. During this

time, readings in educational journals and printed matter mainly from government representatives concerned the advancement of technology and vast amounts of these highlighted the consistently upbeat and uncritical tone (Blake & Standish, 2000). Consequently, there has been an inadequate investigation of E-learning technology, especially within the educational parameters of the primary school classroom.

A failure to investigate the pros and the cons of E-learning technology could result in what Lankshear, Peters & Knobel (2000) warn is to 'hand over the game completely to the 'visions' of neo-liberals policymakers, techno-scientists and corporations who mostly stand to gain...in the image of computing hardware and software' (p.23). Kilner (2000) also argued that 'as with the traditional classroom technologies of blackboards, overhead projectors and videocassette recorders, the use of computers should be approached thoughtfully and carefully with regard to the overall pedagogical goals' (p.77). Furthermore, as E-learning presents just another medium of learning, and how we think is a function of the medium by which we think and communicate (Thorpe & Godwin, 2006), school leaders cannot take the inevitability of web technology many claim as the emancipatory tool of learning for granted. Cole (2000) argues that educators should take a more radical and sceptical critique, based on the notion of technologies that promise to liberate us, can in fact threaten to enslave.

Moreover, there is the view that it is only the instructional methods and not the media employed that can improve the quality of education (Merrienboer, Bastiaens & Hoogveld, 2004). An educationalist who studies the overwhelming E-learning applications will be forced to conclude that 'from a pedagogical perspective, E-learning is a step backward rather than a step forward' (p13). E-learning applications take us back to the early days of computer-based education, with tutorial and electronic books (Merrienboer, Bastiaens & Hoogveld, 2004) with student activities limited to reading from a screen and filling out boxes. Here the computer demonstrates something that must be imitated by the learner. Forms of E-learning that stress the active engagement of learners in rich learning tasks and the active, social construction of knowledge and acquisition of skills are therefore rarely encountered (Thorpe & Godwin, 2006). Feedback is also a critical component of interpersonal interaction (Berge, 2002). However, high-quality feedback is not guaranteed with E-learning. Teachers can better shape feedback to suit the personal identities and situation of learners. As a result, both actors have the potential to respond uniquely and appropriately to each other.

In this paper, two radical views of E-learning as set out by Blake & Standish (2000) include the following issues for critique:

- (1) This medium of learning makes a profound difference to the concept of knowledge and also traditional methods of teaching, learning, identity and community (Kolb 2000). That is E-learning technology introduces 'new concepts of text that must impact on our epistemologies and ultimately new forms of interpersonal interaction that must modify our views of identity and community...' (Blake & Standish, 2000, p. 7).
- (2) Online practises seem to constitute a new paradigm of standing condemnation of conventional traditional practises, such as face to face interaction. Although not to favour face-to-face teaching without acknowledging its own problems also, For example, Blake & Standish (2000) highlights the inherent problems with face-to-face communication is when it becomes the defining character and ends up being only 'highly institutionalised utterances'(p.204)—however, Blake also highlights that body

language reveals important aspects of us to others. Moreover, the ‘problems’ inherent with face-to-face teaching may not be necessarily ‘problems’ but simply rich and relevant experiences of learning and thus part and parcel of the ‘messiness’ of face-to-face interactions.

E-learning and the Web have become synonymous with the education revolution, and is the most significant trend in education for the 21<sup>st</sup> century. Many institutions of learning anticipate it as a definite means of solving many learning and performance problems (Chen, Lin & Kinshuk, 2008; Govindasamy, 2002). However many of the arguments that are presented for E-learning and Web learning technology are often represented as straw men; frequently begging the question using typical watchwords as ‘speed, flexibility, fecundity and efficiency.’ These watchwords are repeatedly used as the starting point for evaluating the ‘positive’ impact of the technology (Lankshear, Peters & Knobel, 2000). Consequently, those who do call for a more rigorous and honest critique, are branded as conservative traditionalists and their arguments abandoned.

Ouzts (2003) notes that based on the rapid growth of the industry, the aims for web pedagogy to generate flexibility and speed of learning, has actually discouraged its members from concentrating on particular knowledge specialism for any substantial period of time (Blake & Standish, 2000). Furthermore, E-learning technology has been increasingly questioned in relation to a number of additional issues, such as the effects of isolation, lack of community and decreased socialization of its learners.

The ensuing concerns related to E-learning technology are outlined with supporting vindication. These particular aspects will then be broken down and discussed with reference to the specific areas of interest within the context of this paper. I will of course not be able to cover the whole depth and breadth of E-learning pedagogy. Instead, I will focus on those aspects that are most relevant to the educational context.

### *Physical isolation*

E-learning does not require the body, only the mind interacting in cyberspace (Ouzts, 2003), yet as Reeves (2008) argues, knowledge does not exist outside the bodies and minds of human beings. Giving a historical overview of the family and work systems within the United States, Chow and White Berheide (1998) note that industrialisation led to technology, which led to a dependence on a machine and eventually results in physical isolation. When a student gets on their computer, they may have a sense of entering a space; there are concrete images that may offer stepping stones within internet—space, but there is no sense of a physical connection—there is only a mask that lies on top of a set of computer instructions. Merleau-Ponty placed the physical at the centre of reality. ‘I am’ because I have a body. Without a body I have no place from which to perceive the world.

### *Community building minimal*

If learning is a social process (see Vygotsky, 1978) involving interactivity and communication with others, the content and activities of students within the ‘community building’ should be evident. Consequently, facilitating learning communities in the classroom is the goal of most school leaders but how does this aim compare to students working individually on the computer? Yang, Kramer & Shen

(2005, p. 2) found that current E-learning and classroom teaching methods are limited with respect to personalised learning as they typically provide the same content to all students. This is due to what Reeves (2008) notes as a predominately 'instructivist' rather than constructivist pedagogical culture. Relatively little emphasis is put on the learner per se who is usually viewed as a passive recipient of instruction.

Asynchronous E-learning using pre-packaged software is based on instructivist pedagogy generally treats learners as empty vessels to be filled with learning. Salomon argues that the results of ICT use in education have been disappointing because they are driven primarily by a pedagogy of instructivism. According to this view, knowledge can be transmitted and the role of technology is to assist in this process' (Salomon, 2000)

### *The popularity and decline of computer mediated learning*

The development of the computer for learning is regarded as one of the major achievements of the twentieth century. Shiny monitors promised perfection—the computer as a learning tool held the masses in awe as a progressive godsend for education. Tung and Deng (2006) argue that although teachers and students were initially enthusiastic about using computers as a learning tool in the classroom with its appeal of graphics and colourful animations, this enthusiasm has been on the steady decline.

As the popularity of computers rapidly grew—endorsed by media and overly zealous educators, children were continually encouraged to use computers at school and at home. Beliefs proliferate among many parents and within a short time, educators were advocating with great enthusiasm that computers were highly important to the education of children and their later success depended upon using computers (Archee, 2000). This gained its momentum in the 1990s but evidence supporting the continued popularity of computer mediated learning is limited. In a study by Graham and Banks (2000), it was found that over time primary children approached computer assisted learning neither overly excited—nor did they ignore it.

If a teacher actively interacted with the children at the computer, the children's motivation to use it increased. As the authors note: "If a teacher were present, lines of children would form at the computer...but if the teacher were absent or another more open ended engaging activity was presented, one that involved the teacher, that is a more human interacting activity, not one child was interested in or used the computer". What this suggests is that it is not the computer that increases a child's enthusiasm to actively participate in learning—rather it is the presence or absence of a human element—and in this example it was the teacher. Therefore, one could conclude that the popularity for computer assisted learning results only from the 'absent' teacher who has handed their pedagogy over to the software. In this environment, children are forced to 'go it alone'. This observation raises the question about children's real interest in computer assisted E-learning. Are children seemingly interested in computers because adults express a fascination with them, but if given the choice would rather connect with adults? This also supports the possibility that children's primary interest in the computer is to understand adult's fascination with the tool.



*Sociability redeveloped*

Technologically generated communities reformulate the way students and teachers view three concepts: social interaction, social bonding and empirical experience (Cerulo, 1997). Moreover technologically generated communities are geared more to one gender. Hellsten's (2006) study in a primary school in Sweden found that computers motivate only the small percentage of male teachers in primary schools but not female teachers who have substantially different perspectives of the role of technology as pedagogy.

*Students with interpersonal intelligences are disadvantaged*

Cole (2000) notes that web-based pedagogy privileges the written word—students must be literate and competitive if they are to capitalize on the formal properties of E-learning technology. In this environment, lost is the opportunity to think aloud, to work through, constitute and articulate new ideas. Even if a teacher were to include the technology of a Wiki as a means of class dialogue and discussion, there are problems to consider. For example, Mosher (2008) argues that the purpose of a Wiki is for everyone to contribute their knowledge to be viewed and shared publicly by others. But if an individual student is not geared toward such openness, criticism or competition; let's face it, such a medium tends to encourage internal competition as participants are encouraged to criticize each other's ideas, then young children are not going to be open to sharing their personal thoughts to an entire class or simply have other students critique their ideas or beliefs. Furthermore, as Cole highlights, teacher and student cannot 'walk and talk' because web based pedagogy enforces a Cartesian duality that splits mind and body. While learning and working on a computer, as Cole insists, we are literally disembodied. For Dewey, learning digitally may well push Cartesian dualism to new heights as minds connect over vast distances without the inconveniences of time, place and body. The result of promoting the mind over the body is not only to dichotomize the two—but shifts the emphasis to 'learning by thinking'—thereby further entrenching antiquated notions of rationality as the sole source of knowledge (Cole, 2000). The assumption here is that all students have similar E-learning needs.

*Minimal teacher expertise with technology*

It has been noted that the declining retention rate of teachers and their pattern of frequent transfers makes it difficult, if not impossible, to maintain the needed level of teacher expertise ([www.rippleeffects.com](http://www.rippleeffects.com)). This was confirmed in a report by Eklund, Kay & Lynch (2003) titled, *e-learning: emerging issues and trends*, which showed that although it is clear that a successful implementation of E-learning depends on the competence of the practitioner, the declining retention of school teachers has resulted in a lack of knowledge, experience and skills necessary for E-learning to profit in most curriculum areas.

### *Knowledge*

The impact that E-learning has on our epistemologies, creates new forms of interpersonal interaction that must modify our views of identity and community (Blake & Standish, 2000). One way to summarize this is to reflect on Jefferies and Stahl (n.d) who have suggested E-learning is well positioned within the 'political push' and technological 'pull' currently prevalent in most higher education institutions. The political push is encouraging educationalists to increasingly experiment with tools which promote E-learning which, in turn, is perceived to help in the development of more autonomous, responsible learners. Whilst such development is likely to have been customised for the educational context it remains a fact that E-learning can very often be viewed as being a neutral tool that can be used to achieve the same ends as non-electronic tools previously did. Jefferies and Stahl argue that this assumption is, however, patently false as there is a large body of literature that states that ICT is not a neutral but has inbuilt assumptions and ideologies that partly determine possible uses of the technology.

Whilst such development is likely to have been customised for the educational context it remains a fact that E-learning can very often be viewed as being a neutral tool that can be used to achieve the same ends as non-electronic tools previously did. Jefferies and Stahl argue that this assumption is, however, patently false as there is a large body of literature that states that ICT is not a neutral tool but that it has inbuilt assumptions and ideologies that partly determine possible uses of the technology. E-learning implies that knowledge can be packaged and transmitted and the tools suggest that reality can be objectively defined, packaged and transmitted. The tools support a more traditional, objectivist approach to education. However, the use of such tools can also be seen to reinforce a particular relationship between technology and our view of humans (Wiener, 1954; Weizenbaum, 1976). For example, if we see humans, not to mention children, as information processing machines, then failure to process information in the desired way is a failure of the machine, which may require reprogramming or being exchanged. Paliwala (2002) suggests this facilitates a sort of degrading technological determinism which emphasises processing increasing amount of information rather than developing knowledge, undermining academic integrity

Engelbrecht & Harding (2001) note that knowledge becomes more or less important simply because technology requires it. Today's students have formed their habits of mind by interacting with information that is digital and networked. Schilling (2005) admits that 'although schools continue to push writing as the skill students must have to be articulate thinkers, they risk stagnation in an epistemological eddy if they do not also appreciate digital video production, database programming, or even the underlying functionality of MediaWiki, as necessary for developing the cognitive abilities to create and share knowledge'.

### *Children, Parents, Teachers and the Great Divide*

Children outstrip their parents in their facility with this technology. Prensky (2001, p. 1) admits that there is indeed a broad ugly ditch that continue to divide young people, the *digital natives*, from their teachers and parents, the *digital immigrants*. As Prensky explains: "Kids born into any new culture learn the new language easily, and forcefully resist using the old" (2001, p. 4); the old being traditional face-to-face teaching. The result: teachers feel compelled to de-emphasize

'legacy' content such as reading, writing, and logical thinking in favour of using computer software. Children have their hands firmly grasped on the technological learning tools so it seems; consequently the knowledge and pedagogy of their parents and teachers, look both obsolete and out of touch (Blake & Standish, 2000).

*Unrealistic:* E-learning is prepacked and tidily programmed. By nature, it organises individuals, influences their patterns of interactions, and their feelings, and organises their thought processes (Lubar, 1993). In this sense, education becomes a product and it can be easily packaged and marketed as a product through internet technologies (Cole, 2000). Noble (1998) argues that the distribution of digitized education as a learning tool - is often justified as an inevitable part of 'good programming' and resonate of the new 'knowledge-based' society. In practice, such automation is however, coercive in nature—being forced upon students, with commercial interests in mind. It is not a progressive trend at all, but a regressive trend, towards the rather old era of mass-production, standardization and purely commercial interests. E-learning is in inextricable part of finance capitalism and performativity (Lyotard, 1984). In other words, E-learning is a product focussed not on education but on speed and efficiency of knowledge creation, transmission and distribution (Besley & Peters, 2005, p.114). In such a milieu "the fate of individual learners will depend on factors which vary according to access to new technologies." (Lankshear, 2002, p 5)

### *Globalisation*

If E-learning is more the result of globalisation than the technology itself (Besley & Peters, 2005); the medium is, in essence, simultaneous with the shifting economy and thus brings with it a certain unpredictability. In fact, a shifting economy attracts labour market advantages. For example, the general servicing and maintenance of computer hardware and software is often substantially better for schools located in the cities. Therefore E-learning technology cannot be considered a stable and equitable method of investment for learning. Moreover, E-learning technology encourages cultural imperialism (see Besley and Peters, 2005) For example, Nalder (2000) points out that although technology has promised to forge global communities, bringing cultures together, the reality is that technology replaces human action with customised software, and in doing so mirrors the aircraft flight paths which carry high volume 'traffic' between centres of paying customers and reinforcing the cultural divide.

A cultural mismatch, between the values and philosophy of Western technological advancement (particularly as E-learning pedagogy is typically exemplified in the classroom) and the values and philosophy held by many Aboriginal people and their communities for example, makes the issue of increasing participation in E-learning technology and computer assisted learning technology at school, a particularly thorny one. As Sims (2008) highlights, indeed E-learning is becoming mainstream, but only within the infrastructure of developed societies, and models of technological learning environments retain their relevance only in a generation in which technology is the medium of learning for those who can afford it. Where these technologies are being used, the difficulty of accessing them and the digital divide between privileged and deprived groups continues to widen the educational gap (Gulati, 2008, p. 2). In addition, as Beastall (2006) confirms, if market forces continue to drive education via the technical and economic route rather than the pedagogical

route, there is a danger that teaching staff may feel further levels of alienation. It would seem that teaching and learning strategies are merely embracing technology in order to satisfy a societal drive towards a postmodern environment that sustains 'Cathedrals of Consumption' (Ritzer, 2000, p. 8).

*Credibility is a continual problem for the Web*

At present that are no Web editors to police what are brute facts and what are not. Furthermore, as Bruce (2000) asks, 'Is the Web a bountiful source of information and resources on every conceivable topic as some claim or is unreliable, ephemeral and over-commercialised as others warn?' (p. 107). A study by Baildon and Baildon (2008) showed that out of a sample of twenty one upper primary students only three were aware that on-line encyclopaedias could be a valid source of credible information—there was obvious confusion over what information and sites were credible and what information was not. As Coiro (2003) notes, with the proliferation of networked information, especially the Internet with its mass of information, varied text structures and changing formats, it is increasingly difficult, if not impossible for primary students to determine the trustworthiness of information gained through technology.

The sheer amount of information, the commercialisation of web content, and the incredulous amount of semi-precious and junk-grade texts highlights the Web as having no real catalogue, no organisation, no board of reviewers, no content policy, no authoritative authors and no canon of established works (Bruce, 2000). It contains every proposition and its negation – it is totally contradictory and incoherent. As it suffers none of the limits of time and space that define conventional collections, these attributes lead its users to both extravagant happiness and excessive depression (Bruce, 2000). Furthermore, assessment is a weak link in E-learning systems. Sluijsmans & Martens (2004) argue that assessment is often a process of gathering data and returning results rather than revealing authentic performance which teachers could use for assessment of educational innovations such as E-learning pedagogy.

The relevance of spontaneity of learning, unrelated to the technological E-machine of conformity and regulation. This is problematic as spontaneity has been linked to high quality learning experiences (Csikszentmihalyi & Csikszentmihalyi, 1992; Williams, 2002). The content of information is minimized as students rapidly scan for bits of information rather than concentrating over longer periods of time on context, structure and critical evaluation, which for example, the study of a class text in a face to face teaching mode could arguably evoke more effectively (Kolb, 2000). In this context, Salomon (1998) notes, textbook learning is considered 'cool', in the sense they are associated with hard work and therefore unpleasant, whereas web based is 'hot' because they are simply more 'fun'. In this sense, web based learning accommodates for the child who is used to the disposable and temporary nature of a postmodern, consuming society, through toys, popular media, gaming systems, fast food and computers (Beastall, 2006).

There is no sense of place with online learning. David Kolb (2000) highlights the need for online learning to develop a better sense of place and connection than it has to date. Kolb states that every web page or related link cannot be treated the same way as a Shakespeare or notable text. Consequently, online learning devalues traditional face to face teaching methods, and in the process deconstructs learning in the same way as SMS messages and graffiti (Donnelly, 2007). Such a deeper dwelling

is discovered only if we stop building technological places. In other words online learning continues to define us, just as all things and places locate and define us. Rather than being our tools or products, online learning simply reintroduces and re-establishes a 'one-size-fits-all' comprehensive method of learning.

Technological learning using computers privileges itself over traditional learning. As the internet opens up education far beyond the four walls of the classroom, and children understand this reality, the question must be asked concerning how traditional pedagogy can ever hope to participate equally in a generation in which technology is supposed to be the best medium of learning. Either it would be more logical to completely and fully hand learning over to technology or pay the price of children deciding that traditional learning is irrelevant and 'boring' – a necessary evil and E-learning technology as 'fun' and exciting. Stout (2001) calls this the 'feel good curriculum'. Stout attacks the basic tenets of the modern curriculum with a focus on entertaining school children, blasting it for lowering expectations, belittling competition, and turning schools into centres for therapy, not learning.

This handing over of education to the technocrats was given one of many warnings back in 1981 when the Director of the Office of Libraries and Learning Technology, U.S. Department of Education, predicated that "in the future all education will take place using computer-assisted-instruction, but that we will always have the school buildings for 'socialization' purposes.' This doesn't instil much confidence in the future of our education system. Moreover, as Litchfield, Dyson, Lawrence and Zmijewska (2007) highlight, not only is traditional learning under threat from modern technological pedagogies but ironically it is E-learning itself that may soon be in the ranks of the unemployed. The latest learning tool; M-learning (mobile wireless internet learning), is the new low cost technology which is forecast to enhance learning and support the characteristics of the 'digital natives generation'.

*The student-centric nature of learning in the classroom: understanding the student learner*

Education beyond the traditional face to face classroom interactions is being transformed, with increasing amounts of web-based tutoring, parental access to real-time student evaluation systems (rather than report cards) and student access to coursework from multiple locations (Ross, 2000). This change is impacting on elements of traditional teaching in order to accommodate a time-and-place displaced setting where the personal computer transforms from an administration and learning tool into a social interface as it continues along its evolutionary journey through hardware, software and communications technologies, although the transformation has still not shown the learning progress that it initially had promised (Jones & Peachey, 2005). A study by Mehlenbacher, et al. (2000) examined how students enrolled in two Web-based sections of a technical writing class performed compared to students enrolled in a conventional face-to-face version of the class. The result: no significant difference in student performance was found between the two learning conditions.

The public, however, is somewhat conflicted about the impact of technology as they also blame it for accelerating already-frantic lifestyles or creating more problems than it solves. For example, Stokes (2000) argues that technology such as E-learning will revolutionize the traditional classroom by ultimately augmenting textbooks with online resources. Apparently books are limited in space—what is

printed between the covers cannot be an adequate selection—the new digital format will of course eliminate that problem (Fitzgerald, as cited in Gibbs & Krause, p. 50, 2000). Marshall (2000) also addressed online resources and similarly predicted it would destroy or displace books and other printed materials. Ross (2000, p.2) notes that ‘this theme was most evident at the Wired Culture Forum, held in Toronto Canada, when over 400 high school students raised serious questions about the rate at which technology is taking over their lives—their growing dependence on machines, the isolating nature of the Internet, and how technology threatens their privacy and ability to relate to others.

A growing number of technology sceptics argue that the digital revolution has produced a variety of deleterious effects, such as disconnecting people from nature, their communities, and one another.’ Romig (1998) highlights two so called meaningful, and authentic learning ‘advantages’ of computer based technologies to transform pedagogy in the following ways: A move from teacher centred to student centred learning activities and a shift from a focus on local resources to global resources. For the latter the presupposition here is that global resources provide ‘better’ knowledge rather than local knowledge or resources. The latter highlights the egocentrism, individualism and polarization that technology encourages and reinforces. The tacit message is simple: it is better not to invest in the local community but to become a member of a worldwide global network. Yet time and time again psychiatrists and educationalists (see Glasser, 1998 and Gatto, 2005) warn that communities are most at threat in the 21 century when they are consumed by the impersonal but extremely sophisticated networks of technology. Consequently, the concern is that the assumptions about E-learning technology may have undesirable effects; for example, homogenization and perpetuating the norms of the already privileged (Fendler, 2006). From that perspective, we can make sense of the different ways the discourse of computer assisted learning can have limiting and/or exclusionary effects, despite expectations to the contrary.

The laissez faire approach to technology adoption in education and other parts of our culture, argues Ross (2000, p. 2) has produced a disturbing lack of critical thinking about technology’s impact. Critics point to the fact that warning messages of environmental and child-advocacy groups about the negative impact of the automobile and television were largely ignored for decades. Richard Scolve of the Loka Institute—an organization devoted to increasing public involvement in technology decisions—told the *Christian Science Monitor* that the public’s lack of questioning about technology is similar to the early euphoria over the automobile. ‘The benefits are personally experienced while the downside is more diffused,’ says Scolve. It took decades before people started to balance the advantages of individual mobility and convenience provided by cars, with the collective impact of smog and unsustainable development patterns’.

Whether it is the automobile or computer assisted learning—there is no doubt that we all bear the marks of a people who are so dependent on technology we have lost the awareness that we actually are. As Kelly (2007), an advocate of technology admits:

Technology cannot reproduce itself without our help at the moment, but it is expanding, growing more complex, and smarter. Most importantly, the technium is evolving faster every day. While it depends on us, we are increasingly dependent on it. Like any child, it has its demands.

**Knowledge transformation and the hegemony of computer learning**

Poster (1993) notes the 1990s as an age which *fetishized* information—knowledge seemed either to be passé or in need of serious reframing. Although educators have always been in the business of transforming information into knowledge, there is no doubt that the ‘progressive movement’ in education was influential with this revolution.

Advocates claimed that conservative approaches to education, such as the reliance on textbooks or bookish methods of instruction (Knight, 2006) were ‘life-denying, out of date and overly restrictive’ (Donnelly, 2007, p. 21). As teachers were urged to abandon traditional methods of teaching to a more ‘student-centred’ learning, the shift was quickly filled with the promise of a technological pedagogy. E-learning presented a new role for both knowledge acquisition and perception. As classroom teaching saw a hegemony of computers in classrooms—a delivery of certain logic and prescription—ICT policy was expected to serve the best interests of the school (Way, 2007). According to Bagley and Hunter (1992), the hope was that students became empowered and spent more time in active construction of knowledge when using technology. Not so, says psychologist Dr David Lewis. Referring to the proliferation of the internet, Lewis (2008) writes: “For the first time in history we’ve entered a culture of ‘instant answers’”. Lewis’ comment suggests the internet encourages a more dumbing down of knowledge—a simple recall or recognition of facts, as the lowest level, rather than a proliferation of more complex and abstract mental levels as evaluation, analysis, synthesis and investigation (see Blooms taxonomy).

Technology alone, of course, does not produce learning; technology is a tool that can be used in many ways, to various effects and dependent on a knowledgeable and capable instructor. Moreover, some knowledge stands the test of time—however the changing face of computer knowledge does not. Furthermore, as Blake & Standish (2000) note, ‘one cannot deliver knowledge, instead knowledge is not knowledge until it is understood and arguments or evidence have been corroborated in some public conversation or dialogue’ (p13). As constructivist theory highlights, knowledge is constructed and selected based on one’s experiences. The *Jasper Woodbury Problem Solving Series* understands this, consequently they developed the *Cognition and Technology Group* at Vanderbilt University (1992), a program grounded in constructivist foundations that requires students to generate or construct their own knowledge as opposed to one that requires them to select knowledge from prepacked options (see Reeves, 2008).

Lankshear, Peters & Knobel (2000) suggest that educationalists should consider the possible epistemological significance and implications of practises involving information technologies. They describe this new knowledge as ‘internet epistemology’ and suggest that the rethinking of epistemology might be seen in the strategies that call for ‘assembling’, ‘editing’, ‘processing’, ‘receiving’, ‘sending’, and ‘working on’ information and data to transform the data into ‘knowledge’ comparative to Wittgenstein’s (1953) ‘performative’ epistemology that conceives knowing as making, doing and acting—mastering the technique (Lankshear, Peters & Knobel, 2000). The implications here involve students enacting their own liberating performances of that work.

Besley and Peters (2005) connect performative epistemologies with technology. Describing performative epistemologies as ‘fast knowledge’ the authors note that fast knowledge has developed in education through the growth of the internet and the new educational uses it permits, such as the rise of E-learning. Fast

knowledge has changed out educational institutions so that it has become part of an outputs-driven performance culture based on performativity. The aggressive marketization of E-learning as fast knowledge compares to what Hightower called the 'McDonaldization of America.' Similarly a McDonaldization of education also entails a market aimed at children and hailed as a provider of a global education. However as Besley and Peters (2005, p.117) note, local ways of learning are replaced by an agent of cultural imperialism.

#### **Do Computers Motivate Children To Learn Faster And Better?**

As Ross (2000) notes, the *Fool's Gold* report claims that 30 years of research on educational technology has produced just one clear link between computers and children's learning: 'Drill-and-practice programs appear to improve test scores modestly—though not as much or as cheaply as one-on-one tutoring—on some standardized tests in narrow skill areas.' Furthermore, Larry Cuban, a Stanford University education professor and former president of the American Educational Research Association, is quoted in the report: 'there is no clear, commanding body of evidence that students sustained use of multimedia machines, the Internet, word processing, spreadsheets, and other popular applications has any impact on academic achievement.'

Despite widespread claims about its potential to benefit education information and communications technology (ICT) has made comparatively little impact on teaching and learning in schools (Jamieson-Proctor, Burnett, Finger & Watson, 2006). When it comes to intellectual growth, the Alliance for Childhood (2007) argues that what is good for adults and older students is often inappropriate for youngsters; although even this might be too generous a conclusion. For example, Brown's et al. (2008) study of the practicality of using asynchronous E-learning tutorials with first year undergraduate university students (the net generation), found that even when a strong academic reward for using E-learning as recourse was provided, this still did not lead to their use. Rather than relying on information technologies, face-to-face teaching with more competent educators is the one constant in studies of how children and adults become expert speakers, listeners, and writers.

Cuban describes the strong support of technology advocates and educational policy makers for investment in 'hard' (e.g., wiring and machines) and 'soft' (e.g., technical support and professional development) infrastructure for schools in the face of so little evidence as 'irrational exuberance.' Moreover, while the Alliance for Childhood acknowledges that for children with certain disabilities, technology offers clear benefits, but for the majority of children computers pose (or contribute to) health hazards and serious developmental problems, such as repetitive stress injuries, eyestrain, obesity, and social isolation. More generally the rapid technology changes of our era have accelerated our daily lives and caused the development of what James Gleick—in his book *Faster: the Acceleration of Just About Everything*—calls 'hurry-sickness.'

#### **Do Computers Motivate Teachers To Learn Faster And Better?**

The issue of genderness and E-learning raises some additional concerns for primary school teachers. For example Hellsten (2006) notes that IT is strongly gendered; that is, having male attributes. Using a primary school in Sweden, (notably



a country with the highest and arguably the most sophisticated expectations of the benefits of E-learning in schools not only as a useful pedagogical resource but with an ability to transform education), Hellsten notes that a division of work, referred to as the old 'gender contract' continues to be reinforced as female teachers' lack the enthusiasm for IT unless it can improve their professional and personal competencies. Hellsten found that male teachers are excited about the new role of IT as it depicts them as technological experts. This threatens to reproduce gender inequalities for future generations. Therefore computers motivate the small percentage of male teachers in primary schools but not female teachers who have substantially different perspectives of the role of technology as pedagogy.

### **Morality and computer learning**

**Must Five-Year-Olds Be Trained On Computers To Get The High-Paying Jobs?** Children must start learning on computers as early as possible, we are told, to get a jump-start on success (Alliance for Childhood, 2007). A major part of the argument for placing computers in classrooms has essentially been a vocational one: students need to learn computer skills that are essential for employment in the modern workplace (Ross, 2000). However, the need for 'technological literacy' is a myth that really masks the fact that it is credentials like a university degree, together with communication skills, presentation skills, leadership skills and conflict management skills. It is not computer-related skills that one needs to get a high-paying job in today's economy, rather it is people skills. Technology critics such as Cuban (1997), argue that the focus of education should be on developing morally responsible citizens who are compassionate with good people skills. These, Cuban suggests are the essential aspects for students who are labelled 'at risk'.

The emphasis on technology is diverting us from the urgent social and educational needs of low-income children. As Massachusetts Institute of Technology professor Sherry Turkle, a clinical psychologist and author of *The Second Self: Computers and the Human Spirit* has asked: 'Are we using computer technology not because it teaches best but because we have lost the political will to fund education adequately?' There is strong evidence that major investments in areas such as expanded preschool and adult literacy education, reducing class size, and ensuring that teachers are qualified and well-paid help children to avoid academic failure and produces more high-school graduates who pursue higher education'.

### **The real world and cyberspace**

**Do Computers Really 'Connect' Children To The World?** The Alliance for Childhood (2007) suggests that what computers actually connect children to are trivial games, inappropriate adult content, and aggressive advertising. The 'distance' education technology promotes is the opposite of what all children need—close relationships with caring adults. *The Fool's Gold Report* (2007) a critical look at computers in childhood states, 'Research shows that strengthening bonds between teachers, students, and families is powerful remedy for troubled students and struggling schools. Overemphasizing technology can weaken those bonds. The National Science Board reported in 1998 that prolonged exposure to computing

environments may create ‘individuals incapable of dealing with the messiness of reality, the needs of community building, and the demands of personal commitments.

In an article titled ‘Virtual playgrounds and BuddyBots: A data-minefield for Tweens’ published in the *Canadian Journal of Law and Technology*, authors Steeves and Kerr (2005) describe the online world of tweens. The online world for children is fun, interactive and cool. Children between the ages of nine and 14 are exposed to so called educational experiences that are really marketing sites that employ practices which are typical of virtual playgrounds, and which turn kids' online education into a continuous feedback loop for market research. The principles of human-computer interaction have been used in an instant messaging environment to create virtual people that interact with children, for all intents and purposes, to sell their product. The biggest problem with these sites is that they keep children glued to the computer when they could be interacting with other children in the real world. In his book, *A Natural History of Place in Education* (2004), the author, David Hutchison suggests that the implications of online learning could ultimately lead to the de-schooling of society—if only because of the tremendous competition in the industry and the immense push by game developers to move hardware and software innovation into the classrooms as soon as possible. As Hutchison observes, this should be of particular pedagogical interest to school teachers.

An article from the *Centre of Education and Research in Information and Security* (2007) highlights the difference between ethics in the real world and ethics online. For many children, there is a very real—and potentially dangerous—disconnect between ethics in the real world and cyberspace. A recent poll found that nearly half of the elementary and middle school students who responded said they do not believe hacking is a crime. There are two characteristics of the Internet that make it difficult for children to transfer ethical behaviour to the online environment:

The first characteristic is the feeling of anonymity. In July 1993, *The New Yorker* published a cartoon with the punch line, ‘On the Internet, nobody knows you're a dog’; the cartoon was making the point that it is easy to feel invisible on the Internet. *The Centre for Education and Research in Information, Assurance and Security* (n.d) note that children often believe that they are ‘invisible’ online because they cannot be identified and can get away with more (this actually isn't true—modern computer forensics makes it very easy to track a user online). Many young children also feel that regular rules don't apply to the Internet. Thus ‘contextual conditions’ as noted by Cartwright and Hammond (2007) play a major role determining what ethical rules apply when communicating online. This confirms speculation by Tearle (2002) that in the context of online behaviour, attitude may outweigh and even alter the importance and protective boundaries of social norms.

The second characteristic is distance. On the Internet, many people do and say things to others that they would never consider doing to someone face to face. Because children cannot see the direct consequences of their actions, they often think that what they are doing won't harm anyone else. Of course, parents know that this is not true. Actions on the Internet still have the same repercussions as actions in the real world. In addition, the distance, lack of face to face and impersonal nature of the internet leads to cyber bullying (Li, 2007). As Li notes, ‘bullies are anonymous...I can say anything I want. It's impersonal. Face to face, however, is a little too intimidating.’

### **Benefits or wishful thinking?**

The most remarkable fact about the rise of E-learning in K-12 and higher education, however, is the speculative nature of the effort. There is little or no evidence to support the beneficial claims of proponents of E-learning for children. A report by the Alliance for Childhood (2007) notes that the use of computers in education have had no proven positive effects on children, and may even be physically, intellectually, and socially harmful, especially for kids under the age of 11. The report, *Fool's Gold: A Critical Look at Computers and Childhood* (2007), grew out of the founding gathering of the U.S. branch of the Alliance for Childhood—an international effort of educators, physicians, and others concerned about the plight of children today and who believe that by working together in broad-based partnerships of individuals and organizations the lives of children can be improved. The Alliance argues that the benefits of computers for preschool and elementary students are vastly overstated and the costs—in terms of money spent, loss of creative, hands-on educational opportunities, and damage to children's emotional health—are not accurately reported. In addition, a review of 150 distance education programs concluded that traditional, paper-based means of distance learning continues to be more reliable, sustainable, equitable and widely used than Web-based methods of learning such as E-learning (Leary & Berge, 2006).

### **Time and money, accessibility and flexibility**

Advocates argue that E-learning represents a powerful convergence of technological opportunity and economic necessity, which makes it the basis of intimate contact between schools and private, entrepreneurial businesses, such as the technology companies whose hardware and software make E-learning possible. The conventional wisdom in educational policy circles has been that children need to be introduced to computers early and that technology should be a strong presence in their school lives (Ross, 2000). David Noble, a professor at York University in Toronto and author of the 1998 article *Digital Diploma Mills*, believes online higher education is being driven by profit, not educational, motives. It is not a progressive trend towards a new era at all, but a regressive trend, towards the rather old era of mass-production, standardization and purely commercial interests. Noble sees online learning as an exact parallel to the correspondence courses of the 1890s, where the main challenge was how to turn a profit and there was no economic incentive to improve instruction. Noble (1998) states that, 'the commercialisation of education...technology is but a vehicle and a disarming disguise.' Elite universities like Columbia and the University of Chicago lent their names to correspondence programs promoted as a chance for the average person to get an elite education. The problem, according to Noble, was that even the better programs had to compete with cheaper fly-by-night operations and in an effort to cut costs, universities ended up paying readers—often graduate students—a piece rate to grade students' work.

'The economics of correspondence learning was to put all your money into hype and promotion,' according to Noble in a *Washington Post* article published last year, 'You get a high rate of sign up. Students pay tuition up front, and instructors are paid a piece rate.' The result was that quality suffered, students (and then universities) got wise and abandoned correspondence learning. From this viewpoint, James Beniger's (1986) forecast in his famous book *The Control Revolution* rings true:

information technologies are the social and political ascendance of the economic goal of 'performativity'—the optimism of the global relationship between input, output and maintaining order. Beniger insists this is a form of social and economic functionalism and suggests this is the true goal of information technologies.

### **Networking and Community**

It is appropriate to begin with a working definition of community and then consider how this description applies to an E-learning setting within the primary classroom. Rovai (2002) defined community as people with a sense of belonging; feeling they matter to each other. Furthermore, they possess shared expectations and are expected to share common values and beliefs. Although in theory, this definition has a certain commonsensical feel to it; if employed in the reality it makes redundant numerous individuals and groups who do not share the values and beliefs of the majority yet have still managed to or desire to contribute in some alternate way to their community. If we were to apply this to an E-learning environment where common values and beliefs are both expected and necessary; those students who do not, cannot or even will not participate are, figuratively speaking, 'in the ranks of the unemployed' in this form of 'prescribed cyber learning.' In other words, the reality is a network—not a community. As the educationalist John Gatto (2005) observed:

In a real community the individual matters. The employment of the differences of each person is welcomed in practise and instead of forcing people to relinquish their identity to a common goal; the individual is given the green light to continue being their own person. A community needs to be a place in which people face each other over time in all their human variety, good parts, bad parts and all the rest (p.56).

Advocates who protest that technology can and will progress to the building of communities miss the point entirely. Using a computer to 'teach' community aspects of empathy, failure, wisdom, self-sacrifice, love, generosity and a variety of other human attributes, fail to recognize that these are best understood and learnt through 'messy' face to face exchanges.

### **Discussion and conclusions**

E-learning offers great promise as a powerful tool that can be integrated into curriculum and instruction to enhance education. Yet a careful consideration of its promises and a thorough review of the literature suggest that persuasive usage on Internet technology does not guarantee positive gains in instructional objectives, rather the heart of learning lies in effective instructional strategies that manage diverse educational provisions to optimize student learning. This would suggest a move to a more constructivist rather than instructivist E-learning pedagogy. This is because knowledge is socially and individually constructed on the basis of experience.

Moreover, E-learning pedagogy at the primary school level encourages physical isolation—that is, mind and body must be active in the learning process, pseudo community building, the redevelopment of sociability, the privileging of the written word, a lack of teacher expertise in technology, the recreation of knowledge as performance, the technological divide between parents and children, the reformation

of education as a product, the links of E-learning to the economy, the creation of cultural imperialism, the lack of credibility on the web, the lack of spontaneity of technological E-learning, the lack of a sense of place and finally the privileging of technological learning over traditional learning. These could be described as negative critical incidents and these are arguably more important than positive critical incidents because negative critical incidents are likely to create bad image in learners' memory (see Chen, Lin and Kinshuk (2008)). The arguments in this present paper suggest that E-learning technology spawns a homogenisation—a McDonalised education—and a dehumanisation of its customers (primary school students)—therefore, while technology in the form of E-learning offers many advantages, it also has many downsides.

In light of these considerations one might adopt a rather sceptical view of technology and conclude that E-learning has little to offer to education. The alternative is to adopt a more thoughtful perspective. As Mioduser, Nachimias, Lahave and Oren (2000) suggest, a sceptical view might include reflecting on this transitional stage, generating new possible models of learning based on student's needs or a focus on the negative critical incidents of E-learning. Consequently, the hope of this paper is to have raised and presented some pertinent philosophical questions for school teachers, school leaders, students and designers of E-learning experiences, and in doing so, also consider the best elements of traditional models of face to face pedagogy.

A further anticipation of this paper is to have helped student's awareness of not just facts and arguments, but of the process by which they inhabit and learn (Kolb, 2000). Used as a medium of learning and not the new pedagogy, E-learning has increasing potential.

This paper has argued that the advent of E-learning raises many interweaving philosophical questions. These questions are important to address as there is no doubt that E-learning and web based pedagogy will continue to transform the current definitions of 'teacher', 'student' and 'learning' (Cole, 2000). At the same time, as this paper goes to print, E-learning like all technology is being replaced by a supposedly better technology, M learning, which promises to further standardize and homogenise traditional face to face pedagogy.

It would seem that we have given up trying to improve traditional face to face pedagogy and handed the gauntlet over to technology as the great hope for the future. Therefore a laissez faire approach to technology in education will not produce positive educational experiences. Instead the potential downside of E-learning must be recognised and wise use of technology for both the individual and the collective good. Clearly, the potential benefits of E-learning for students and teachers are great, but what are the trade-offs? How do school leaders employ technology for appropriate educational ends, as opposed to quick-fix pedagogical or budgetary ends? These are questions that should compel us to consider what role we want for technology in our lives and what might be missing in our schools and communities in a machine-dominated age.

As learning technologies become more sophisticated, so too must our critical assessments shift to a focus of their impact on student's lives in the present and future. If the arguments in this paper hold water, then it at least offers a set of insights into the underlying principles of technology and their application for creating uniformity in learning. Granted, traditional face to face teaching can never guarantee quality pedagogy; E-learning pedagogy seems to be in worse shape. It compounds an increasing uniformity in learning, which ultimately could lead to a McDonaldization

of education. Although there will always be a need for a highly circumscribed number of technocrats to replace themselves, it would appear that critical thinking individuals who determine their own needs as individuals free from the commands of technology are becoming increasingly obsolete.

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