Information communications technologies in education: a Faustian bargain?

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ABSTRACT

There is currently a glaring absence of critical discourse surrounding the integration of information communications technologies in schools. Despite a growing body of literature showing that technology has both advantages and disadvantages, schools are incorporating ICT as if it were a panacea for educational and societal ills. This deification of ICT is based on utilitarian concerns and spiritual yearnings. The first chapter situates the author and outlines how the larger technology metanarrative has a mythic status. Chapter two situates the appeal to utilitarian and spiritual values in the wider culture. The final chapter examines how these issues are played out in the school system. The author concludes with a summary and raises areas for further investigation, along with suggestions for change.

Il existe actuellement une absence importante d'un discours critique au sujet de l'intégration des technologies de l'information et de la communication dans nos écoles. Malgré la croissance d'une littérature indiquant que la technologie nous présente des avantages et des désavantages, nos écoles incorporent les TIC comme s'ils étaient une panacée sociale et éducationnelle. Cette déification de la technologie est liée à l'utilitarisme et une aspiration transcendentale et spirituelle. Le premier chapitre situe l'auteur vis-à-vis son sujet et explique comment la technologie s'agit d'un mythe. Le deuxième chapitre situe cette attirance à les valeurs utilitaires et transcendentales dans la société entière. Le dernier chapitre examine comment ses questions se déroulent dans le contexte scolaire. L'auteur termine avec une synopsis et repère des questions à poursuivre en offrant aussi quelques suggestions.

CHAPTER ONE: Introduction

Background and Problem

Imagine a school where...

...the image of a child at the computer came to symbolize the intense intellectual inquiry akin to that depicted by Rodin's famous statue.

Douglas Noble—The Overselling of Educational Technology

Imagine a seventh grader in today's classroom...clicking speedily through a computer slideshow presentation projected onto a screen with teacher and parents beaming with pride, peers gazing on feeling out-classed and green with envy; sounds, blips, and buzzes resonating with every click. Animations, graphics, stylish fonts, self-scrolling banners stealing everyone's attention; the on-lookers gazing, as Douglas Noble suggests, awe-struck by the focused energy the student directs at the machine. Surely what is going on is of a higher order? It must be "learning," educational and meaningful? It has to be—it's happening in school, after all...or are our students, and possibly even teachers, confusing "form with content, sense with sensibility, ponderous words with weighty thought?" (Stoll, 1999, p. xiii).

Imagine the anxiety of the Teacher in the classroom next door... still groping for the "on/off" switch or trying to get past the first screen...or the sense of inadequacy...or the mystery shrouding the god of Technology (Postman, 1995) who has suddenly left her feeling uncomfortable with a profession she has practiced and loved for many years; a bereft and unsaved soul...part of technology's great unwashed.

Imagine the school's Principal and Governing Board...terrified of being the leaders of a

school left on the wayside of the technological Superhighway. The fear and embarrassment of being regarded a school of have-nots (cf. Flake, 1996, p. 99), with a staff of technological stragglers, hagglers and technophobes while other "Throngs of educators, lemming-like, line up to wire their schools" (Stoll, 1999, p. xiii; cf. also Noble, 1996).

Imagine the anxiety of a group of hopeful student-teachers...seated in an auditorium as they are addressed by the Director General of the school board who, in describing the state of affairs in education, fails not to mention that his board will not hire teachers who are not computer literate.

Imagine the school board Directorate and Council of Commissioners...weighing and agonizing over decisions about how to allocate strained human, material and financial resources; knowing, however, that there are absolutes and non-negotiables when it comes to embracing and supporting a value and phenomenon appropriated at all levels of the school system and ubiquitously across society. Technicians are dispatched, teachers trained, computers shipped. Sometimes books are on hold, teachers declared surplus, classes oversized and working conditions difficult while we submit to an invading army of computers whose "march is steady and relentless, and nothing can stop them" (Cartwright, 1989).

Imagine a Ministry of Education...where immense plans are underway to significantly "reform" the whole educational process at the primary and secondary levels. The winds of these sweeping changes bring with them official sanction of technology by the highest levels of educational governance: technology is to be integrated across all disciplines and all cycles of primary and secondary education.

Now imagine why, despite the growing corpus of critical literature (Postman, 1992, 1995; Stoll, 1999; Robertson, 1998; Wertheim, 1999; Maddux, 1996; Mergendoller, 1997; Gutstein 1999), the integration of technology in education is rarely, if ever, presented as

controversial within the school system; rarely spoken of, as Neil Postman relates metaphorically, as a "Faustian Bargain" (1995, p. 41) or as an opportunity cost—to borrow a familiar paradigm from Economics:

> If an anthropologist from another planet were to study faculties of education, s/he would conclude that the blessings of information technology for education are universally accepted. S/he would not know that there is presently a vast body of critical literature. If s/he did, s/he might discover that these critics are not just neo-Luddites and reactionaries (Morris, in press).

As a high school teacher, administrator, and computer consultant, I have always found it as troublesome as it is peculiar that the vast majority of professional literature, in-servicing and exchange has been overwhelmingly "pro-technology." I recently saw an episode of *The Staff Room* (entitled "Technology in Schools"), an educational television series[1] which confirmed my feeling. In it, Heather-jane Robertson, author of *No More Teachers, No More Books: The Commercialization of Canada's Schools*, described the lack of dissenting voices as a culture of "compulsory enthusiasm" in which teachers are silenced and where there is no legitimate place to raise questions about technology (2001).

As school or board level professionals, we are sometimes more critical of the school's lunch menu than a phenomenon that is changing fundamental beliefs we hold about what constitutes sound pedagogy and "best practices." Moreover, we sometimes shirk the responsibility of sifting through and challenging the hype to weigh all that is lost and gained in the process. When educators are at all critical of technology, the debate seems to focus on whether technology saves time, if it is reliable (in the sense of not breaking down), if it costs more than it is worth, etc. The questions are almost never about whether we need to save time, whether technology focuses us on the wrong questions, or

[1] cf. The show is produced by British Columbia's *Open Learning Agency. More information available at http://www.ola.bc.ca/ol/corpfact/profile.html*

whether we should use it just because it is there.

In short, we do not see technology as a double-edged sword and do not challenge the presuppositions of what Postman describes as a "Technopoly" (1992), or a self-justifying state or ideology in which technologies of all kinds exist with a sort of pre-eminence, authority and determinism traditionally associated with religion:

> Technopoly eliminates alternatives to itself in precisely the way Aldous Huxley outlined in *Brave New World.* It does not make them illegal. It does not make them immoral. It does not even make them unpopular. It makes them invisible and therefore irrelevant. And it does so by redefining what we mean by religion, by art, by family, by politics, by history, by truth, by privacy, by intelligence, so that our definitions fit its new requirements. Technopoly, therefore, is totalitarian technocracy (p. 48).

Postman could easily have included education in his list of institutions and values that are redefined by technology. In his later book, *The End of Education: Redefining the Value of School* (1995), he does just that, describing Technopoly as widespread across society's institutions, "But nowhere do you find more enthusiasm for the god of Technology than among educators" (p. 38).

Situating Myself Philosophically and Professionally

> "There is no area of deliberate human behaviour that lacks a moral dimension. The value questions are everywhere..."
>
> Daniel Maguire—The Moral Choice

At this point, you may be thinking, technophobe or Luddite? Neither! I use computers and Information Communications Technologies (ICT)[2] almost every day. I check my e-mail religiously, look for information on the Internet all the time, make presentations using my laptop, and love learning about the latest gadget or piece of software. In short, I am joined at the (c)hip with my PowerBook. I am no means an expert, but I am certainly not a neophyte. I never consider turning back the clock as a Luddite might nor would I demonize technology without recognizing the many advantages it brings. As I gaze at my computer monitor, however, I wonder if something is gazing back. Do I use technology or, as Postman asks, does it use me?

I am a person who holds firmly to the postmodern belief that our values colour virtually everything we think, say and do. I feel that reintegrating values into cognitive activities can make important contributions to our knowledge (Narayan, 1989). I believe that there is a values dimension at work everywhere and that this is neither a contagion to be dreaded nor a liability to be avoided, unless we find a way to crawl out of our skin:

> There is no stepping outside of...[our values]; no presurgical scrub that cleanses us of our own convictions and commitments. [Wherever we begin] our environs shape our visions. This is not the curse of subjectivity but a description of the human condition. The challenge [...] is not cool objectivity, but a clarity and honesty about where we begin. (Zullo and Whitehead, 1983, p.24 as cited in Morris, 1994, p. 28).

For many, technology is already shrouded with profuse mystery and so I will step forward from my research to identify more of my baggage so that you, the reader, can better locate me in relation to my research interest. I am a white, first-generation, Greek-Canadian, male educator. I have been a teacher, vice-principal and computer consultant. My academic background is in the tradition of the liberal arts and humanities. My philosophical leanings are toward Postmodernism and moral philosophy. The subjects I have taught are largely made up of Moral and Religious Education, although I have also

[2] I will refer to Information and Communication Technologies as "ICT" henceforth.

taught Mathematics and Integrated Computer Technology.

As a teacher, I ran my school's pedagogical servers and acted as the ICT representative to the Board. I enjoyed teaching my students the nuts and bolts of computers, as well as how to use them for research, presentations and organizers. As a front-liner in educational technology, I attended and presented at numerous in-service sessions, and constantly kept abreast of all professional literature on ICT that circulated from the Board, Ministry or the field of education.

As an administrator, I handled the technology dossier in my school and worked with the school's ICT Committee. I have helped host two delegations of teachers and administrators from Britain and Denmark who visited my school to study the integration of ICT. As a result, I had an ideal opportunity to compare notes with people whose job it is (or includes) the kettle of fish known as technology in education.

Currently, I am a pedagogical computer consultant in my Board. My mandate is to facilitate the integration of technology in the curriculum.

As you will hopefully agree, I find myself in an ideal position from which to observe technology in education. I can see everything from Luddites to Technocrats. While I enjoy my vantage point, I myself live and work somewhere around the centre of the hubbub of ICT in education.

As a teacher, I have always been eager to explore pedagogical trends and incorporate the more "innovative" and creative ones into my teaching repertoire; but a teacher's life is a fast-paced one and so I have found an intellectual solace in my graduate studies where I have taken some time to read from a variety of authors about my professional and personal interests and to reflect upon the busyness of my business.

I think about the human condition that Zullo and Whitehead speak of, as well as

happiness, meaning, epistemology and pedagogy. I enjoy connecting these ideas with my personal life as well as with my life as a "public intellectual" (Giroux, 1997). For me, true "professional" enhancement as a teacher stems from greater self-knowledge and self-fulfillment, therefore my studies reflect an exploration of my own inner life as a person as much as an educator in the greater educational context.

As a young teacher seeking professional security and a voice in difficult and strange waters, I left few educational stones unturned. I have never regretted my inquisition of the profession, even when fate set me on a path which was to transform me profoundly. It began innocently enough with an appeal from an administrator who hoped that I could find some way to integrate technology into a subject area that in many ways represented uncharted and possibly dangerous waters for technology: Moral and Religious Education (MRE)... after all, it is our job to raise values questions!

I accepted the challenge and began a project that lasted over two years. I created a CD ROM of educational resources for the MRE Curriculum which required that I abandon the ranks of neophyte and take the plunge into a whole other world. Three years later, I found myself teaching Integrated Computer Technology, administering the school's pedagogical server, chairing the school's ICT Committee and sitting on the school board's equivalent body.

Mysteriously enough, and I still marvel at this phenomenon, many turn to me as the as the in-house guru who speaks the Latin of technology. I see myself as a person who picked up a few tricks here and there and who knows what some of those weird acronyms like "URL" and "FTP" stand for. Alas, my hands are dirty. I am no longer a neophyte nor a technophobe, but I am critical of technology.

It seems there is no going back for me. Teachers treat me differently, sometimes as if I belonged to a secret society. The lid has been blown off the Pandora's box and all that is left is the hope that I make sense of this particular aspect of my fate and the human

impact of technology where there are always wins and losses. As a values educator, however, I am straddling two very different worlds and I cannot allow myself to embrace such a sweeping force unexamined in light of all that I am about.

The Quebec Context

At present, momentous changes are taking place which are reshaping the landscape of education in the province of Quebec. The Quebec Education Program (QEP), known commonly as the "curriculum reforms,"[3] represent the most significant change to the *régime pedagogique* since the early eighties. My goal for discussing it in this work is to situate (locally) the phenomenon of technology (and Technopoly) within a specific educational context. From all that I have read, seen and heard, the position of the Quebec Ministry of Education on the role of technology in schools is representative of what is going on in other educational systems in the United States and western Europe. The Reforms are thus relevant in that they provide local evidence of a trend or movement in education which is informed by a larger phenomenon.

As mentioned earlier, part of the problem that I am investigating is the notion that the Reforms, like the pro-literature from which they derive sustenance, presuppose that ICT is overwhelmingly (if not absolutely) positive and, as such, ought to be integrated "across the curriculum:"

> The Quebec Education Program considers information and communications technologies, which have become (*sic*) absolute requirements, as tools and resources for learning. [...] Given their prevalence in society and their many applications, the ability to use them is considered a methodological cross-curricular competency in the Program of Programs (Ministère de l'Éducation du Québec, 2000a, p. 4).

[3] I will refer to the Quebec Education Program as the Reforms or QEP henceforth.

After studying the QEP, I can only conclude that ICT is not being presented to schools as the thorny issue Postman or Stoll describe. ICT is being sold as non-negotiable ("absolute requirement"), unavoidable (due to its "prevalence in society") and all-reaching (as a "cross-curricular competency in the Program of Programs'). Cartwright, as quoted earlier, likens this thrust to an unstoppable army with a relentless and steady march. Neil Postman refers to it as a "forthright determinism" (1995, p. 39) which presupposes its continued existence and eventual entry into or sweep of our lives.

The Reforms seem to suggest, as Postman argues, that we must use technology because it is there, and they further demonstrate, moreover, his assertion that we will remake our institutions to accommodate technology (1996, p. 39). Clifford Stoll writes that, "When I point out the dubious value of computers in schools, I hear the point 'Look, computers are everywhere, so we have to bring them into the classroom.'" [...] He responds, "Well, automobiles are everywhere too. [...] But we don't teach automobile literacy" (p. 5). While Stoll's is not a perfectly fair comparison since cars cannot be used like computers for academic research, his point that their mere prevalence does not make them educational or life-enhancing is, nonetheless, well taken. On the other hand, if we adopt a wider definition of "literacy," perhaps we should include automobile literacy as part of a greater technological literacy given their monumental impact on humanity. (I will return to this notion of a wider sense of literacy at the end of this paper).

The Reforms do not give rise to the kind of critical inquiry that asks, as Blacker (1996) asks, that if "technology proposes a particular conception of the good life, should we, avoid teaching technology in public schools in the same way we avoid teaching a particular religious doctrine?" (cited in Morris, in press). It is ironic, I suppose, that not long after confessionality was wiped out of Quebec schools, a new "absolute" has stepped in to be embraced and venerated.

Two of the most basic philosophical underpinnings of the Quebec Reforms are a

"competency-based approach" and Social Constructivism. The former stresses "...the importance of helping students see the relevance to their lives of what they are learning by explicitly linking learning to various useful and meaningful contexts" (p. 5); the latter views "all learning as a personal construction that builds on the learner's cognitive and affective resources" (p. 6). Knowledge is not simply passed down from teacher to student; the student actively engages in a meaningful learning process in which he/she is the principal actor and meaning-maker:

> This concept of learning emphasizes the role of cognitive dissonance—when students are led to question their own beliefs and representations—in the process of constructing knowledge and developing competencies (p. 6).

In many instances, however, what becomes important are the needs of this new entity, the technology-god, and our accommodation of them: "What technology requires," says a former principal who now manages a Virtual Classroom project with the Communications Research Centre, "is the teacher to move from a distributor and director of knowledge to a coach and facilitator" (SchoolNet, 2000, p. 37). While I agree with him epistemologically that the teacher does not possess a monopoly on knowledge and even pedagogically that students should be actively engaged in acquiring and interpreting information, I have to slam on the brakes when I am told that this must be done because *technology* requires it of us! Who is using whom and toward what end?

The print source of the quotation above, SchoolNet, has been argued by Donald Gutstein as a "partnership" between Industry Canada and corporate groups like TeleCampus (which develops the "Virtual Classroom" type project mentioned above by the former principal, which makes no distinction between publicly- and privately-funded and sanctioned education), MultiActive and Youth News Network (YNN). He writes that these are "merely business transactions touted as partnerships" (p. 205) and "masquerading as education" (p. 221). He gives compelling evidence of how public

school systems are accommodating (and prostrating) themselves to business leaders who openly declare that they see education as an industry. He concludes, "To encourage New Brunswickers to embrace the information age, become well trained for call-centre jobs, and purchase telecom and cable services, McKenna's government made basic computer literacy a requirement for high-school and community-college graduation" (1999, p. 219).

Far from producing a creative tension, cognitive dissonance or questioning environment, the role of ICT, as presented in the Reforms in Quebec or in McKenna's government in New Brunswick, confronts us with a terrific irony: Its discourse, reality and truths are not so much constructed as they are revealed, whether this be by big business or other interest groups. This, and its positioning on the level of "program of programs" or as graduation requirements seems to render the "good" of ICT to the realm of myth.

Myth

My thesis, as suggested above, is that ICT in education has assumed a mythic status. Before I connect the phenomenon of technology in education with myth, it should be said that my use of the word "myth" has a specific meaning and is used much as Morris describes it in "The Mythic Horizon of the University: Problems and Possibilities for Value-Based Leadership" (in press). Morris, furthermore, traces some of the themes I will pick up on below, except that he applies it to the institutional malaise within the university while I apply it to technology in precollegial education. Firstly, myth is not used in the popular sense of lie, falsehood, illusion or even in the classical sense of legend or fable. Like Morris, I use the term to describe a worldview, metastory or metanarrative; one which I will also use synonymously with "god" whose purpose, Postman says, is:

> ...to direct one's mind to an idea and [...] story—not any kind of story, but one that tells of origins and envisions a future, a story that constructs ideals, prescribes rules of conduct, provides a source of authority, and above all gives

> a sense of continuity and purpose (1995, pp. 5-6).

The myths or gods we adhere to answer, therefore, the proverbial and metaphysical "why" questions. They give us a reason to buy into something so wholeheartedly that we either embrace or forget the trials and tribulations along the way.

A second point about a myth is that it inheres a certain set of values: "It is the myth we live by that determines whether or not a particular value is worth upholding, an action is worth rewarding, an achievement is worth celebrating or a particular story is worth telling" (Morris, in press).

On this notion of embedded values, Morris speaks of a "mythos that drives the ethos" (p. 12) in that the particular values one embraces (perhaps on a more "everyday" or contextualized level) are connected to and driven by the larger and perhaps more abstract myth or metanarrative. This micro and macro perspective on narratives reveals the existence of different layers of embeddedness and awareness. In my case, the myth—or "god of Technology"—has been understood by some as the progeny of a greater god:

> More precisely, it is its offspring that is so welcomed. For like another god, the God who produced a Son and a Holy Ghost, the science-god has spawned another—the great narrative of technology. This is a wondrous and energetic story, which, with greater clarity than its father, offers us a vision of paradise. Whereas the science-god speaks to us of both understanding and power, the technology-god speaks only of power. It demolishes the assertion of the Christian God that heaven is only a posthumous reward. It offers convenience, efficiency, and prosperity here and now... (Postman, 1995, pp. 9-10).

Postman, like Morris (in press), sees technology as a god unto itself, but one that points to and sustains a deeper myth which lies beyond a mythic horizon. Whereas the science of the early modern period in western society took root in the "inductive" tradition of the sixteenth century (Postman, 1995, p. 8) which sought to explain its tenets with the highest deference to Judeo-Christian theology and cosmology, technology has become application-oriented and silenced the need for an "Enlightenment." It thus speaks only of power. What we need to know is limited to the "hard facts" that it works quickly, efficiently while offering us hope and even salvation; herein lie the embedded values and apotheosis of a new myth. The supremacy that this myth assumed was, however, identified and challenged from the outset. Blaise Pascal called it the vanity of science and weighed its merit relative to matters of the spirit: "Knowledge of physical science will not console me for ignorance of morality in time of affliction, but knowledge of morality will always console me for ignorance of physical science" (Pascal, 1966, p. 36).

The mythic status of the god of technology goes beyond what even Postman dreamed of in that it not only offers a more palpable or earthly "here-and-now" version of heaven, it tells stories of transcendence on a more metaphysical level.[4] The deification metaphor is thus even more applicable than he probably first meant.

In connection with this, I will later develop two key values and components of the myth that deifies technology in general and ICT in particular: utilitarianism and spirituality-transcendence. Before doing so, however, a third and key point about myth must be made: a myth can disguise and even conceal certain other truths, particularly a fiercely monotheistic god like that of technology. Consequently, what we see is limited:

> A living myth, like an iceberg, is 10 percent visible and 90 percent beneath the surface of consciousness. While it involves a conscious celebration of certain values... it also

[4] cf. *The Pearly Gates of Cyber Space* (Wertheim, 1999). I will return to this notion of spiritual transcendence below.

> includes unspoken consensus, the habitual way of seeing things, the unquestioned assumptions, the automatic stance...to the person who lives within the mythic horizon, it is nearly invisible (Keen and Valley-Fox, 1989, p. xi).

Evolution of a Myth

One model for understanding the changes a myth undergoes comes from Moore (1972) who maintains that myths go through three phases. In the first stage, the myth emerges and is compelling, but only for some. In the middle passage, a myth becomes more entrenched and taken for granted. "Here," Morris writes, "debate is anathema. Criticism is blasphemy" (p. 14). Only in the last stage do its proponents begin to raise critical questions and challenge its underlying assumptions.

At this point, I would have to say that the technology-god in education still defines reality for us, no matter how questioning or critical any vision statement we may come across in a school or board. A "vision" may be nominally critical or questioning, but the currents of the greater and more insidious myth(s) it operates under often render it little more than lip service.

As I noted earlier, the Quebec Reforms do speak of creating knowledge and cognitive dissonance in learning, and raise the idea (in the domain of "Lifelong Learning") of a media literacy whose aim should be to help students "decode media products," as well as "construct and exercise their critical judgment" (p. 65). In the same breath, however, the QEP states that, "They [children] gradually become aware that the media are a source of pleasure and discovery" and encourage adults close to them to help them understand the answer to the inevitable question, "'Why are there certain television programs that I can't watch?'" (p. 65).

The last two excerpts reveal two of the numerous underlying assumptions that my thesis

hopes to challenge, and support my earlier assertion that a vision statement (like that of the QEP) can be nominally critical, but essentially hollow. The first one, that media are a "source of pleasure and discovery," betrays the value that media are seen as primarily good and life-enhancing. The second, that seeks to explain moderation in consumption understands media literacy in terms of quantity and quality of content (i.e., which and how much of program X can I watch), but ignores the questions that challenge the inherent values and properties of a medium itself, in this case television. McLuhan's famous aphorism that "The medium is the message" is thus ignored and technology is criticized, but from within the mythic horizon.

Parents who oppose television may not only be reacting to violent content, for example, but to the built-in passivity of the medium and the possibilities lost in its presence. One family pulled the plug on its television for a year as part of a friendly wager and found that their children read more, went to the library more, spent more time together, etc. (Girard, 1999). Interestingly enough, the family also noted that reactions were mixed, with some even asking if the family was part of a cult!

A similar mentality exists in education, where there is a marked and profound absence of dissenting voices. Unanimity and "on-boardness," moreover, are virtues equated with progress. The chairman of the Alcoa (Tennessee) Board of Education speaks to this phenomenon:

> I've been on this board 14 years and seen several board members change, and I don't think we've ever had a vote where we were purchasing new computers or doing something with technology that has ever been opposed by a single board member. Our board supports technology, and (*sic*) we've been fortunate that we have had a good staff and superintendents who are forward thinking (Cook, 2001, p. 37).

The irony for me is that the narrower the perspective toward the god of technology, the more "forward thinking" one is considered by its proponents. There is certainly no lack of evidence that the technology-god still operates in the second of Moore's three stages of myth.

Major Themes Followed

Now that I have introduced my topic, I will need to substantiate the proposition that there is a myth or god of technology in education. First, however, I will follow two major themes in the next chapter—the utilitarianism and spirituality/transcendentalism of technology in western society—to illustrate the wider existence of the technology-god; that is to say, beyond educational circles. The third chapter will focus on the manifestation of the mythic status of technology in the educational milieu.

The intention is to make a connection between culture and education with the hope of fostering a more thorough appreciation of the sources of technology's impetus and values. It will hopefully become clearer that the belief in technology, our stance towards it, and our accommodation of it, runs deep.

My treatment of the topic will end with a conclusion in which I will review and summarize my thesis, and raise other related questions and issues which were beyond the scope of the present, yet which merit discussion. Finally, a few suggestions or possibilities for change will be offered in terms of embracing both edges of the sword of technology and new possibilities.

CHAPTER TWO: The Larger Cultural Phenomenon of Technology

A Religion of Technology?

In the following chapter, I will briefly trace portions of the intellectual history and context within which the technology myth has come to thrive. As mentioned, two very important values with which the myth is infused are utilitarianism and transcendence. The former refers to the supremacy of the value of utility, usefulness or applicability in which the "good" of something relates directly to what we can do with it or gain from it. Here technology is very instrumental or means oriented. The latter refers to a sense of "otherness," spirituality, redemption and, in short, all that affects the human condition. Here technology is also god-like in that it offers hope and sense of salvation.

Both concepts are closely related and stem from a larger cultural narrative from which the technology myth draws profuse energy. Another distinction to be made is that while we are all familiar with the notion of usefulness with regard to technology, the terms technology and spirituality are rarely mentioned in the same breath, or at least not openly admitted as being intimately related. After all, what does a computer have to do with the immaterial or the infinite and how can we possibly speak of a religion of technology? Neil Postman speaks to this phenomenon:

> [I]t becomes far from asinine to speak of the god of Technology—in the sense that people believe that technology works, that they rely on it, that it makes promises, that they are bereft when denied access to it, that they are delighted when they are in its presence, that for most people it works in mysterious ways, that they condemn people who speak against it, that they stand in awe of it, and that, in the born-again mode, they will alter their lifestyles, their schedules, their habits, and their

> relationships to accommodate it. If this is not a form of religious belief, what is? (1996, p. 38).

In the course of this thesis, I will attempt to illustrate how most, if not all of these elements of worship and deification exist in the technology myth: its promises and the accompanying belief in its ability to "make good" on them; the enthusiasm, awe, reverence, mysticism and dependency it fosters in its proponents; its dislike for criticism; its ability to make people change themselves to suit it, etc. In short, I will examine how technology has become that which is our "ultimate concern" (Postman, 1992, p. 2).

In educational circles, one of the most indelible impressions the god of technology has made on me is its ability to make proponents (including teachers, students, administrators and parents) feel like they belong to something transformative and important. People either feel like they are being led somewhere or are being left abandoned on the sidelines of something great and momentous. Luddites notwithstanding, those who cannot access ICT—for whatever reason—do often feel bereft. I have often wondered why, and the best answer I could think of is that technology offers its faithful hope-inspiring promises. If we define a sacrament as a visible sign of god's invisible presence, I would describe the role of technology in education as communion with the divine. Don Tapscott warns, "The have-nots will become confronted with the contradiction between the magnificent potential of the new technology on the one hand and (*sic*) their declining quality of life on the other" (1996, p. 67).

One important promise made is that technology embraced is currency gained. This promise is two-fold: firstly, technology offers an instrumental currency in the sense of a means of exchange (much like money) which can be applied against something else (Logan, 1995, p. 218). With it, one can obtain information, save time, automate tasks,[5] etc. The second type of currency it offers is in the sense of timeliness and recency. The first offers a sense of empowerment, while the second offers a potent sense of belonging,

[5] On automation, Don Tapscott writes: "...learning in schools can be done through technology, requiring fewer teachers. This leaves teachers in a Catch-22 situation—become irrelevant by resisting change or possibly become irrelevant by leading it" (1996, p. 67).

adequacy or normalcy in that one is "on-board" or "with the times." Beyond that, I suspect, is the feeling that we are being led somewhere society is predestined to go.

In *Culture Jam,* Kalle Lasn observes that, "Our mass media dispense a kind of Huxleyan 'soma.' The most powerful narcotic in the world is the promise of belonging. And belonging is best achieved by conforming to the prescriptions of America TM" (1999, p. xiii). Lasn obviously speaks here of the myth of consumerism in America, but his idea applies very well to the technology myth as well. The promise of belonging is one made by the Internet where the title of "connected" is one of the most nourishing and enslaving that can be bestowed upon its adherents.

Clifford Stoll, one of the pioneers of the Internet, laments how a thirteen year-old girl once looked at him straight in the face and asked, "How can I meet boys if I'm not on-line?" (1999, p. xiv). I remember working at a small diner where an anxiety-ridden taxi driver fretted over the inner-workings and nature of the Internet. "What is the Internet? I have to get on it, don't I..." he would ask. As he knew that I was a college student and a technology user, he directed many of his questions (and vented much of his angst) at me. Since his immediate needs did not include an awareness of the Internet, much less the need to use it, I could not get over how utterly forsaken and dejected he felt due to his "ignorance" of another plane of existence known as the "Net." Indeed, he seemed to single it out as the ticket that could afford him membership in a society that all people seemed to be flocking to. Belongingness or connectivity, for him, had a normative connotation.

The other sense of currency I referred to, that of a means of exchange or acquisition, is also etched into the western psyche by the voices that haunt us into believing that we will miss the proverbial boat in life if we do not accept the grace of this god. Students hear it all the time when we tell them how important technological literacy is to their career

prospects.[6] Although Postman describes this particular manifestation of our cultural metanarrative by the phrase "god of Economic Utility" (1996), it certainly holds true with the god of Technology, being bound as it is by the principle of utility. Henry Giroux picks up the theme of economic utility and its relationship to technology and education:

> Whereas higher education might have once applauded educating students for occupations that revitalize public life, such as health care, teaching, and social work, the new emphasis is on educating students for work in technical and managerial fields, such as computer and financial services (p. 237).

There is no doubt in my mind that the same applies to precollegiate education where the same instrumental ethic and promises apply: "Addressing the young, it [god of Economic Utility] offers a covenant of sorts with them: If you pay attention in school, and do your homework, and score well on tests, and behave yourself, you will be rewarded with a well-paying job when you are done" (Postman, 1996, p. 27). One such proponent says that, "Schools *must* follow the changes in industry because these changes reflect changes in the skills required of students when they leave school" (Morton, 1996, p. 419). How best to teach these skills? You guessed it...computers (pp. 416-419).

Sources of the Myth

Although we (in the west) live in an intellectual climate that many scholars characterize as postmodern, the myth of technology is still firmly anchored in the modern period. Many epithets, traditions and movements can be used to describe that which informs and sustains this technology myth.

[6] The anecdote related earlier of a Director General of a school board warning a group of student-teachers that they might not be hired unless they are computer literate is based on an actual event.

Taylor connects the overarching narrative (of instrumental rationalism that drives the technology myth) to the market and bureaucratic state which, "tends to strengthen the enframings that favour an atomist and instrumentalist stance[7] to the world and others;" he describes the power of this utilitarian and hyper-rational metanarrative as the "galloping hegemony of instrumental reason" (1991, pp. 111-112). It is, however, not just a political, economic, or educational phenomenon. At root is a "Malaise of Modernity" in response to which the technology-god steps forward to offer an alternate vision and a transcendent state, on a practical level for sure, but on a spiritual level as well in its ability to sustain hope, offer meaning and redeem us from suffering:

> The primacy of instrumental reason is also evident in the prestige and aura that surround technology, and makes us believe that we should seek technological solutions even when something very different is called for. We see this often enough in the realm of politics [...] but it also invades other domains such as medicine (p. 6).

Stringer describes modernity as an era of "faith in the application of rationality, science, and technology to the improvement of the human condition" (1993, p. 143). Similar to Postman who presents it as a "Faustian Bargain" (1995, p. 41) with wins and losses, Stringer warns us that the rewards of the modern era "have been matched by the development or aggravation of huge and intractable social problems" which include human alienation, environmental problems, and the proliferation of weapons.

Positivism and Scientific Rationalism

This spirit of "instrumental reason" stems from an earlier movement that still, to a significant extent, defines the larger myth of which the technology-god is an avatar. I

[7] I will further examine both of these notions, that of an atomist and instrumentalist stance, in chapter three. Postman ties them together and relates them to the god of technology which he argues erodes social values (pp. 46-47)

speak here of Positivism, a philosophical movement that took root in the early nineteenth century (Compte, 1988, p. viii) embodied chiefly in the work of Auguste Comte, a radical French thinker who espoused the virtues of Scientific Rationalism.

Technology draws heavily from Comte's positivist camp as an objective and value-free application of science. Its creed is the attainment of *episteme* (true and certain knowledge) and objectivity. In this discourse, technology epitomizes efficiency, reliability[8] and the malleability of nature for the sake of human progress. It sustains the doctrines of a cult of efficiency which revealed its full colours in the Industrial Revolution of the early 19th century and which still prevails today as a universal good (Postman, 1992, p. 2). Its cousin, the cult of information, also drew its first breath during the positivist uprising and gained momentum (and zealotry) during the Encyclopedic movement of the Enlightenment in 18th century France. It too abounds in our day and has, with the advent of the computer and Internet, seen a revivalism and fanaticism of epic proportions. In *The Cult of Information*, Theodore Roszak wrote:

> Like all cults, this one has the intention of enlisting mindless allegiance and acquiescence. People who have no clear idea of what they mean by information, or why they should want so much of it, are nonetheless prepared to believe that we live in an information age, which makes every computer around us what the relics of the True Cross were in the Age of Faith: emblems of salvation (cited in Postman, 1996, p. 44).

A contemporary proponent of technology speaks of the computer and its ability to impart information with the passion and conviction of an evangelist who believes that he/she is witnessing a unique moment in history (as did Comte) which is nothing short of

[8] Here reliability can be taken in its statistical sense (that a scientific truth can be (re)proven by following the scientific method of experimentation) as well as in its connotation of trustworthiness.

the unfolding of a divine plan:

> How remarkable that computers burst upon the evolutionary scene at almost precisely the time they were needed! Just when civilization experiences the beginning of a knowledge explosion of unprecedented proportions, along comes a device to control and cushion the explosion and provide new ways, not only of storing knowledge but of navigating through it, retrieving it, manipulating it, massaging it, and creating new knowledge as well (Cartwright, 1989, p. 15).

Interestingly, Postman takes a radically different stance to Cartwright. For Postman, the vaulting of information access to the top of the educational list of priorities, "comes, one might say, at a most inopportune time" as the problem of "giving people greater access to more information, faster, more conveniently, and in more diverse forms was the main technological thrust of the nineteenth century" (1995, p. 42). The problem now is not how to get, how to store it, etc., but what to do with all the information available. A computer can retrieve, but it cannot instill in us a critical understanding of all the information we consume through it.

Just the same, Cartwright's view on information prevails today, as it did in Comte's day, who also spoke of controlling, shaping and creating new knowledge with the excitement and anticipation of a new and higher order:

> When these two[9] tasks have made sufficient progress, the final triumph of the positive philosophy will take place spontaneously, and will reestablish order in society (Compte, p. 30).

[9] 1. The completion of the positive philosophy by including in it the study of social phenomena; 2. the summing up these findings in a single body of homogeneous doctrine.

The "massaging" of information, like the "classification of the positive sciences" (Compte, pp. 35-67), is a road to some sort of salvation or apex of human betterment. Comte speaks of a required "division of intellectual labour" (p. 16) in the encyclopedic movement to more efficiently engineer the pathways towards the reasoned, enlightened and promised land of positivism and away from two earlier and inferior philosophies—the theological and the metaphysical: "It [Positivism] alone has been making constant progress for many centuries, while its antagonists have been as constantly in a state of decay" (p. 29).

Similarly, Cartwright sees the unfolding of a bigger plan in our time as following from two earlier stepping stones when he proclaims the computer as the, "last addition to this trilogy[10] [writing and printing being the first two]. It [computer] allowed for the first time the manipulation of ideas outside the human skull" (p. 15). In response to his rhetorical question of "What computers have in store for us?," he trumpets, "Nothing less than the promise of untold knowledge in a vista of unlimited potential, at the dawn of a new era" (p. 18).

In further illustration of Taylor's principle of a "galloping hegemony of instrumental reason," Cartwright goes on to say that "its chief role seems to be the enhancement of the human mind" and that it "may properly be thought of as the next step in our evolution to a higher plane of existence—an existence characterized by superior intelligence, improved understanding, and greater harmony" (p. 18). Here, the instrumentality of technology is as stepping stone to a transcendent state, or perhaps *is* the transcendent state thus collapsing the medium and the message into one and the same.

The Technology-god and the Legacy of the Enlightenment

Many other proponents are also raising salvationist hopes of technology that hark back

[10] cf. Alvin Tofler's *The Third Wave* (1980) who also writes about an Information Age and Revolution which follows from the Agricultural and Industrial Revolutions.

to the social experimentalism of the Enlightenment and its offspring ideologies and revolutions. In "Birth of a Digital Nation," Jon Katz proclaims the "primordial stirrings of a new kind of nation—the Digital Nation—and the formation of a new postpolitical ideology" which is a composite of the "best values rescued from the tired old dogmas—the humanism of liberalism, the economic opportunity of conservatism, plus a strong sense of personal responsibility and a passion for freedom" (1997b, p. 49).

He asks quite rhetorically, "Can we construct a more civil society with our powerful technologies?" In response to this question, Katz compares conventional politics with those of a Digital Nation, and notes that existing political institutions are suffused with ideology, while

> ...the digital world is obsessed with facts. Where our current political system is irrational, awash in hypocritical god-and-values talk, the Digital nation points the way toward a more rational, less dogmatic approach to politics. The world's information is being liberated, and so, as a consequence are we (1997b, p. 50).

Here technology, in the form of a politically active on-line community of "Netizens," is portrayed as the saviour of democracy in its ability to stick to the cold, hard facts and thereby liberate its citizenry based on the best values "rescued" from the past channeled though the freedom of the Internet. We see in Katz, as we do in several others, how instrumental rationalism is infused profusely and profoundly into the technology myth. I would argue that Katz's deference for "fact-based" and value-free information is based on the belief in a positivist epistemology that espouses a way of "knowing the world in its pristine state—a kind of immaculate perception..." (Eisner, 1991, p. 46).

Katz's underlying assumption is one of the Enlightenment's most sought-after ideals: the separation of church and state, passion from reason, and belief (*doxa*) from fact

(*episteme*). In such dichotomies of good and bad, useful and useless, lies salvation and the *deus ex machina* to execute the plan is the technology-god. Whereas Cartwright claims technology's greatest legacy to be its ability to change our thinking in the form of an anticipated sixth generation symbionic relationship between human and machine (1989, pp. 17-18), Katz sees it as its ability to "fuse with politics to create a more civil society" (1997b, p. 186). Both, however, rely heavily on the power of knowledge and information and, either way, the *status quo* of humanity is not acceptable. Cartwright's faith in highly advanced thinking machines is challenged by Logan who notes that. "Where AI [Artificial Intelligence] breaks down is that not all aspects of the human mind are controlled by the logical operations of the brain's neural nets" (1995, p. 260). Logan describes AI as hubris and an overextension of science (p. 260) and warns its proponents that "their impoverished view of the human spirit will discourage others from fully realizing their human potential" (p. 263).

Technology is rationalized as the instrument of redemption and a more-than-just-pragmatic kind of salvation. Katz writes that the, "digital world offers real promise of a more enlightened way," supporting this proposition with the assertion that, "The Enlightenment fostered the great idea at heart of today's digital world: information ought to be free" (1997b, p. 190). If we examine this discourse from the perspective of literary genre for a moment, it would seem more likely to be found on a shelf alongside a book on Buddhism than technology or politics.

This freedom is the Netizen's version of libertarianism and, "Since the Net was founded in part by scientific and academic communities, their use of it is more advanced—perhaps presaging what it can mean for the rest of us" (1997b, p. 190). Here the digital masses, bereft of its secrets and grace, can aspire to the technology-god's promises provided that they openly embrace it. "The Internet is not, after all, something that children need to be protected from. Rather, they urgently need access to it" and to cultivate the values of democracy, citizenship, knowledge, literacy and community, "our educational system needs to learn how to accommodate a culture [Digital Nation] that is interactive,

knowledgeable, participatory, and frequently restless" (Katz, 1997a, pp. 274-275).

Parker Palmer asserts that the foundation of any culture lies in the way it answers the question "Where do reality and power reside?" Judging from Katz's words above, Palmer is likely not exaggerating when he answers this question in claiming that, "in our culture, the answer is clear: reality and power reside in the external world of objects and events and in the sciences that study that world, while the inner realm of the heart is a romantic fantasy, an escape from harsh realities, perhaps, but surely not a source of leverage over the real world." (1998, p. 19). It is no wonder that Katz can speak of current politcs as irrational and dogmatic: it has not been subjected to the practices of scientific and academic rationalism.

"Neat and Tidy" Intellectualism

One of the most appealing aspects of the tradition of Inductive Science and earlier rational thought, from the time of Aristotle to present, is a neat and tidy intellectualism which technology has fully appropriated in its reductionism and formulaic thinking where X will bring about Y, where facile good-bad dichotomies abound and where values and subjectivity must be removed from fact-based thinking. Lamenting a culture where objectivity and purity fuse, Parker Palmer writes that, "the self is not a source to be tapped but a danger to be suppressed, not a potential to be fulfilled but an obstacle to be overcome. In this culture, the pathology of speech disconnected from self is regarded, and rewarded, as a virtue" (1998, p. 18).

Accompanying the hegemony of objectivity and tyranny of schisms is another pursuit whose spiritual fallout lies beyond the mythic horizon (and view) of those who acquiesce unquestioningly to the technology-god, that is, our obsession with externals. Palmer attributes this addiction to the power gained over reality and the freedom from its constraints:

> Mesmerized by technology that seems to have done just that, we dismiss the inward world. We turn every question we face into an objective problem to be solved—and we believe that for every problem there is some sort of technical fix. That is why we train doctors to repair the body but not to honour the spirit; clergy to be CEOs but not spiritual guides; teachers to master techniques but not to engage the students' souls (1998, p. 19).

True to the positivist spirit, we tend to pursue that which we can control, that which we can know, and that which we can solve, often with the least effort. Just as scientific thought is empowering in its ability to penetrate and demystify innumerable natural conundrums, our enormous appetite for its application—technology—lies in our addiction to take control of things, not the least of which is reality and its spatial and temporal constraints: "Like a powerful drug, the Internet snatches our minds from our homes, transporting us into the nowhereville of cyberspace, where time and place have no meaning" (Stoll, p. 146).

This propensity inherent in technology often equates with laziness and "risklessness" as the god of technology always seeks to deliver its goods by appealing to our love for convenient time- and effort-savers.[11] Stoll cites an actual proposal from the director of MIT's Laboratory for Computer Science (Michael Dertouzos) for a virtual reality extracurricular activity for kids: the Virtual Compassion Corps! Here kids would be paired up across racial, gender, and class lines and perform duties such as offering foreigners advice and even arrange interviews with prospective employers. Stoll writes:

> In this way, students will perform community service and mentor others, while displaying their cultural awareness over the network. All without ever having to shake hands with a real person, travel to a distant country, or (gasp!)

[11] I will return to the notion of speed a little further below.

face the real problems of another culture. Simple, safe, and sterile (pp. 106-107).

Simulation has become the most popular experience in Modern American culture (Naisbitt and Naisbitt, 2000, p. 77). Some people will sooner buy compact disks with sounds of nature than alter their lifestyles to actually bring nature into it or them into nature.

Taken too far, living in a world of externals laden with control factors must surely have an effect on our spiritual growth. After all, even a mundane technology like the automatic garage door opener, writes Morris, "radically severs the possibility of an embodied relationship with nature...In northern countries like Canada the growing popularity of the remote car starter means that the ten seconds it takes to walk from your home or place of work to your car might be the only cold you ever feel" (Morris, 2001, p. 164).

I feel compelled to ask, then, of the technology-god whether or not its crusade for an "intellectually orderly" world brings with it a spiritually impoverished human condition.[12] In an intellectual climate that has demystified the universe, rendering the complexities and enigmata of humanity soluble and explicable, it is easy to imagine how we have chosen to cling to a technological metanarrative that can fix, shape, relieve and change; but what does this do to excite one's inner passion, to allow us to converse quietly and profoundly with our inner selves, our bodies, and to connect us to all things that we are intimately bound with and embrace the possibility of "Truth as seen as something given and revealed in the stillness and receptivity of contemplation?" (Arendt, H., 1958, as cited in Morris, in press).

For all its advantages in telecommunications, medicine and several other areas, the technology-god has left the universe turned inside out and thus disenchanted. As Palmer

[12] Elliott Eisner speaks of Clifford Geertz who coined the term "thick description" (1973) whose ethnographic work "calls into question the tidy positivism" that influenced his [anthropology] field. Eisner writes that, "Thick description is an effort aimed at interpretation, at getting below the surface to the most enigmatic aspect of the human condition: the construction of meaning" (p. 15).

notes, there is a technique to tackle every problem and an answer to all questions. Even the Judeo-Christian God was fully rationalized by the first storytellers of inductive science in the sixteenth century and the Deists of the Enlightenment who conceived of God, the greatest of all mysteries for many, as a distant clockmaker, an all-powerful engineer who had no real concern with day-to-day human activities (Winks et al., 1988, p. 462). What a feat—the greatest eschatological questions of humanity explained by a world operating under its own natural laws which science and reason, not theology and the Bible, had access to. Pascal warned us that, "If we submit everything to reason our religion will be left with nothing mysterious or supernatural (Pascal, 1966, p. 83). Postman argues that the great age of science "was based on a belief in a God who was himself a scientist and technician, and who would therefore approve of a civilization committed to such an enterprise" (1996, p. 8). The grounds were thus laid for a myth that could, in a manner of speaking, rule by divine right.

In summary of the theme of an ordered intellectualism, I leave you with the following quotation from Elliott Eisner:

> The distinctions between knowledge and belief, biased and unbiased perception, truth and falsity are directly related to familiar dichotomies between inner and outer, mind and body, subject and object. The legacy of the Enlightenment and the effort to create a tidy, intellectually orderly world contributes further to beliefs with which we have become so comfortable.

Homo faber and the Utilitarian-Instrumental Myth

In her famous book *The Human Condition*, Hanna Arendt speaks to the idea raised earlier that for every problem, there is some sort of technical fix. She describes the modern

human as *homo faber*, or "fabricating man" who is a maker and a fixer, an architect or engineer as opposed to a philosopher or theologian. Interpreting Arendt, Morris writes that, "In modern times, with the rise of science, industrialization and technology, knowledge and truth are seen in much more pragmatic terms. Humans can only know what they themselves make" (in press, p. 16). This idea helps explain Palmer's observation that we gravitate to externals and things we can manipulate or otherwise change more easily and quickly.

Homo faber's action-mindedness, moreover, requires the right kind of approach in order to act in a transcendent way so that we do not "live out our active lives as automatons who move but do not choose" (Palmer, 1990, p. 58). The right kind of action can do just that, provided that we know what we are interacting with, as every form of action involves another. Palmer feels that this requires "giving up one of the most cherished but destructive myths of our technological society—the myth that all things are plastic, malleable, capable of being molded into any shape we require or desire" (p. 69). Seeing action as co-creation between two parties may mean, in the case of ICT, examining how technology acts upon or uses us, a point made over and over in all of Postman's writings on the subject.

For Arendt, this myth of modernity is defined by *homo faber* who equates intelligence with ingenuity and who is contemptuous of anything which has no immediate utility. An aesthetic of beauty or harmony would not be practical, and like the positivist bias that throws by the way-side all that is beyond what can be known or used as a first step, *homo faber* is tyrannized by an ethic of utility:

> [H]is instrumentalization of the world, his confidence in tools and in the productivity of the maker of artificial objects; his trust in the all comprehensive range of the means-end category, his conviction that every issue can be solved and every human motivation reduced to the

> principle of utility; his sovereignty, which regards everything given as material and thinks of the whole of nature as of an immense fabric from which we can cut out whatever we want and resew it however we like; his equation of intelligence with ingenuity...(pp. 305-306).

On Arendt's notion of "every human motivation reduced to the principle of utility," I would like to share a recent experience. Upon a routine examination of my pregnant wife by her obstetrician, he noted that she was sufficiently dilated to be sent to hospital with orders to "stimulate" the pregnancy. When the resident in the birthing centre explained that "stimulate" meant to inject a labour-provoking substance followed by a manual intervention to rupture the amniotic sac, we realized that the term was a euphemism for "induce." As first time parents, frightened at any such decision affecting the coming-to-be of our child, we managed to reach the obstetrician by telephone back at his office. When I asked if this procedure was at all "invasive," he reacted very strongly wondering where "this whole thought process was coming from." He added that, "Nature kills babies. That is why we become doctors."

It must be said that I was shocked, both at the doctor's polarization of nature and medicine as well as by his sudden aggression. Although I tried to explain my concern as metaphysical, he seemed unable to fathom that, for my wife and me, the motivation was an ethical and spiritual concern and not a technical or procedural one. This was apparent in his comment about "this whole thought process" since mine was not a rational or cognitive process at all. That we were "thinking" with a motivation beyond utility was seemingly unimaginable. The resident was also locked into a similar concern, as he told my wife that she would probably not have "effective contractions" without the medication and that it would be better to get the ball rolling during the day in a "controlled environment" (as opposed to going home and taking our chances).

I realized, also, that perception is framework-dependent. It is, as Eisner suggests,

influenced by skill, point of view, focus, language, etc.: The eye is not only part of the brain, it is part of tradition (Eisner, 1991, p. 46). A mother's fear that she may encroaching on a natural course of events was beyond the schemata of a doctor whose value system and schooling obey the god of technology. Describing ideological blindness, Postman suggests that, "to a man with a hammer, everything looks like a nail... To a man with a computer, everything looks like data (1992, p. 14).

My question of whether the procedure suggested was invasive seemed to attack an underlying principle of technology: that if science has proven a technique as advantageous, and if the technology exists to apply it to a problem, then there should be no other consideration. The whole situation reminded me of a saying my high school chemistry teacher had: "philosophy is as useful as a screen door on a submarine." Validating my concerns was my wife's sudden cry as the doctor "broke her water:" she was sorry that we let someone, other than time or fate, literally break apart our newborn's world. Although I supported the decision to induce her, I respected the pain and loss that she felt in the sudden physical detachment from a life she carried for nine months.

Although our situation was not life-threatening or grave in any medical sense, it did illustrate the existence of an instrumentalist ethic pitted against the "uselessness" of emotion and spirituality (cf. Palmer's notion of the inner realm of the heart as romantic fantasy, p. 19). I wondered how irrational it might seem to a doctor for a patient to refuse a surgical intervention or a blood transfusion for spiritual reasons. Morris describes the prevailing mentality in medicine as being based on a belief in the body as a machine in which, "the role of the physician is to fix the machine using the most sophisticated procedures and technological instruments modern medicine can provide" (in press, p. 19). A hidden assumption of this perspective is that something is of value only when it works or is in a healthy state. "Decline and death," explains Morris, "are unacknowledged possibilities because they threaten *homo faber's* claim to potency."

In his book *Man's Search for Meaning,* Victor Frankl reassures us that "life remains potentially meaningful under any conditions, even those which are most miserable...and it does so because it is based on the values that he or she has realized in the past, and is not contingent on the usefulness that he or she may or may not retain in the present" (1959, p. 176). Frankl sees utilitarianism as being defined in terms of functioning toward some social good and argues that today's society is characterized by achievement orientation which consequently adores people who are successful and happy and, in particular, young:

> It virtually ignores the value of all those are otherwise, and in doing so blurs the decisive difference between being valuable in the sense of dignity and valuable in the sense of usefulness. If one is not cognizant of this difference and holds that an individual's value stems only from his present usefulness, then, believe me, one owes it only to personal inconsistency not to plead for euthanasia along the lines of Hitler's program, that is to say, 'mercy' killing of all those who have lost their social usefulness, be it because of old age, incurable illness, mental deterioration, or whatever handicap they may suffer (p. 176).

Frankl's book intimates how his survival in a Nazi prison relied on his seeing beyond the utilitarian myth and searching for meaning within himself and within life itself. In fact, the freedom of his thoughts and dignity was the one thing he asserts that could not be denied him during the years of inhumanity he suffered at the hands of the Nazis.

The Useless

There is a story from Chinese philosophy that offers us a perspective that attempts to break the lockstep relationship between useful and valuable, such as that which Frankl

challenged as being blind in its ability to value only that which retains usefulness in the present:[13]

> Hui Tzu said to Chuang Tzu:
> "All your teaching is centred on what has no use."
>
> Chuang replied:
> "If you have no appreciation for what has no use
> You cannot begin to talk about what can be used.
> The earth, for example, is broad and vast
> But of all this expanse a man uses only a few inches
> Upon which he happens to be standing.
> Now suppose you suddenly take away
> All that he is not actually using
> So that, all around his feet a gulf
> Yawns, and he stands in the Void,
> With nowhere solid except right under each foot:
> How long will he be able to use what he is using?"
>
> Hui Tzu said: "It would cease to serve any purpose."
>
> Chuang Tzu concluded:
>
> "This shows
> The absolute necessity
> Of what has 'no use.'"
>
> (McDonnell, 1974)

[13] cf. Morris, R. (1998). "Pour un éducation sexuelle inutile." In A. Giroux (Ed.). *Repenser L'Education: Reperes et perspectives philosophiques.* (pp. 73-84). Ottawa: Les Presses de L'Université d'Ottawa. Morris highlights the value(s) arising from a perspective and practices that are not immediately useful.

Just a Tool?

I would like to return for a moment to an element of myth that I outlined earlier; that of embedded values. The idea that the myths we live by have ingrained and inherent values which stem from a tradition has been made, but I would like to tie it more closely with the technology-god. In my anecdote about the doctor who could not understand language outside his conceptual framework, I suggested that the eye is more than just a body part. Symbolic representation, whether it be a language, an icon or a myth, is enmeshed with a set of values, and must therefore be understood as emerging from a context and as having a reason for being. Technology, it can be argued, is no different:

> Embedded in technology there is a powerful idea... Like language itself, a technology predisposes us to favor and value certain perspectives and accomplishments and to subordinate others. Every technology has a philosophy, which is given expression in how the technology makes people use their minds, in what it makes us do with our bodies, in how it codifies the world, in which of our senses it amplifies, in which of our emotional and intellectual tendencies it disregards (Postman, 1995, p. 192).

Homo faber, based as he/she is on the utilitarian-instrumental myth, makes frequent use of digital and electronic tools in performing acts of piety for the god of technology. In doing so, the suggestion is often that what is important is not so much how something is done, but that it is done or that it can be done. This is naturally more often the case when the god of technology is called into question. For example, technology in education is almost always spoken of as a learning tool whenever questions arise about whether or not

it will replace teachers[14] or quash the imagination of students. The reason for this is perhaps to cleanse the tool from any trace of bias or interference, mitigating it, but more often than not, absolving it of any inherent value or ability to do harm. As an innocuous *tool*, it can enjoy the safety of neutrality and protect itself from criticism.

What seems taken for granted, is that tools do indeed belong to a tradition. Eisner reminds us that, "The questions we ask, the categories we employ, the theories we use guide our inquiry; indeed, what we come to know about the world is influenced by the tools we have available. [...] Method and medium are not passive instruments" (1991, p. 28). I believe this statement to be accurate not merely because of what the tool can do, but what it tells you it can do and that it tells you what you ought to do with it and how.

"Tool" and The Politics of Language

In my readings on technology, I have found it interesting how the use of this simple term "tool" is a loaded proposition—fraught with ideological baggage of significant proportions. Chris Morton in "The Modern Land of Laputa: Where Computers are used in Education" (1996) urges us not to call computers[15] *tools* because to do so is to perpetuate a stereotype of them as mere add-ons thus obscuring their role...and their majesty:

> To suggest, therefore, that computers are simply tools entirely misses the point about their expanding capabilities and their interaction with humans. In the larger society, the

[14] cf. On the topic of teacher obsolescence, Donald Gutstein (1999) writes: "But once education is electronified, education services can be consumed anywhere in the world, and there will be less need for schools and teachers and even for a public presence in establishing curriculum..." (p. 14). Later on, he gives more support to his argument that "virtual" distance education is a huge profit industry and illustrates this with the "Microsoft Institute" McKenna supported. It roped all public schools into its network and offered resources to students, providing that they used Windows 95 (p. 222).

[15] At some point in my writings, I realized how ideological and value-laden my use of *technology* and *computer* was. I have equated technology with computers. Although the alphabet or running water is also "technology," my own reductionism reveals the value we attach to computers and the differences we perceive in "high tech' versus "low tech." cf. Stoll, p. 29. Naisbitt and Naisbitt explain that "High tech implies progress, while low tech feels outdated" (p. 76).

> computer is a symbol of the future and all that is good about it (1996, p. 417).

Morton goes on to say that as *tools,* computers are put on a cost continuum with pens and pencils which makes them easier to dismiss as expensive alternatives. As "add-ons," Morton argues, they cannot be seen for what they are: "...as the driving force behind an integrated, cross-disciplinary learning environment that emulates the 'real' world" (p. 417). The assumptions implicit in this argument seems to be the familiar utilitarian criticism that schools are impractical, focusing on things other than reality; and secondly, the instrumentalist belief that computers, not pedagogical practices or anything else, will catalyze and transform the learning environment for the better. (This notion will pursued at length in chapter three).

Another proponent argues, as Morton does, that computers are good and necessary, except that unlike Morton, she relies on the assertion that computers *are* just tools: "Its like saying because bad things are written on chalkboards, we should do away with chalkboards. To not use the power of these [computer] tools in education means a lot of children will be bored with learning" (Vail, 2001, p. 15). Both authors, in their own way, demonstrate the ideological use of the term *tool.*

Ironically, computers seem to have no inherent values, except when they are good ones! When any negative value is seen as inherent in technology, proponents like Vail will steer the discourse away from values rendering them "tools." Technology, however, cannot be value-free. A gun, for example, is not just a tool. Consider the famous NRA rejoinder to anti-gun lobbyists that "guns don't kill people, people kill people with guns." While not false, this is not the whole truth either. Human motivation and accountability is certainly paramount, but the deadliness, accuracy and concealability[16] of guns has an important effect on their appeal and use. Guns do indeed emerge from a context of violence and war and are embedded with their own properties and cultural values. Are they too not

[16] I learned recently at a seminar on "Emergency Preparedness of Schools" of the existence of hand-guns that take the form of a cell phone which can be carried surreptitiously in one's pocket...all this while looking trendy...

designed to be efficient, precise and deadly? Do they not carry with them a reason for being, namely war? Do they not appeal to a certain type of personality?

Gun users often quote the American Constitution which protects their "right to bear arms." Although the historical circumstances which provided a reason for being for guns are no longer present, the NRA will cling to the spirit of this inalienable right, no matter how much of an anachronism it seems to others. Giving up such a right for the sake of peace in society would come at too costly a price: the renunciation of freedom. The fear factor in this discourse is also present in technology. Morton asserts vehemently that, "The idea of 'computer as tool' permits the ignorant to justify their decision to reject it" (p. 417). If I am a smart person and at all fearful of being thought otherwise, I should carry a gun, or believe that I have the right to do so to protect my individual rights; I should also believe that computers are salvation, not machines.

The Origins of the Internet: A Case-in-Point

Applying the concept (of embedded values) to the Internet, we could ask: What is the form of this technology that influences or determines its function(s)? Firstly, it should be known that the Internet was a military creation. It began in 1969 as an initiative of the United States Defense Department and was known then as "ARPAnet" (Ryder and Hughes, 1997, p. 2). ARPAnet is an acronym for the Advanced Research Projects Agency which was designed to link a number of military sites together to form a single overarching research network.

So as to not jeopardize classified information by placing all eggs in one basket, however, the military designed a bombproof network. The result was the creation of multiple connection paths to other computers on the network so that if one was disabled, another could be used to disseminate information. Messages were divided into "packets," sent out along a manifold path to their destinations, and reassembled into a whole upon arrival. This is known as "Packet Switching" (Hoffman, 1998, p. 108). As one could imagine,

"This ability to 'route around damage' or to select different paths has implications for those attempting to censor information on the Internet" (Ryder and Hughes, p. 2).

Built into the form or design of what later became known as the World Wide Web were several were several key features which reflected military values. The first design feature was to create a wide front and ubiquitousness that would allow rapid dispersion and thus prevent any blockage of information. Packet switching, reflects a tactical value of self-preservation and invincibility through decentralization which, inevitably, led to the Web's function as a haven for uncensored information.[17] Switching information routes was a game of hide-and-seek which kept the location and identity of sources unknown, thus a value of anonymity was also imbued into the Web. Trying to control and pinpoint its flow of information is a little like trying to see or catch a gust of wind as it envelops your body.

Since its conception was also based on a desire to share resources widely and instantaneously, the Internet also reflects a value of a specific kind of communication—one that transcends time and space. Just as night vision and infrared technology allowed the military to overcome the limitations of darkness, and radar to overcome the limitations of sight, the Internet created "a virtual world where time and space have almost no meaning" (Lacquey and Ryer, 1993, p. 2). Of course, it goes without saying that speed and efficiency are of paramount importance in an enterprise that was integral to the infrastructure of the Cold War and its arms race.

Naturally, however, my position is challenged by proponents of technological change. Even the famous Marshall McLuhan once asserted that "The electric changes associated with automation have nothing to do with ideologies or social programs" (McLuhan, 1964, p. 352 as cited in Logan, R. K., 1995, p. 222).

[17] There is the famous story about how the Net served to help dismantle Communism during the coup attempt in August of 1991. Despite the Soviet attempts to jam radio and television stations and to ban newspapers, an e-mail carrier by the name of Relcom posted releases about Gorbachev's arrest from the banned news agencies and "man-in-the-street" reports from subscribers to major western news sources. The censorship of information could not stop the Internet (Laquey and Ryer, 1993, p. 4). c.f. Logan, R.K. (1995) *The Fifth Language: Learning and Living in the Computer Age.* p. 222.

The Technology-god and the Spirit

Thus far, I have focused on the first of my two major themes: the utilitarianism and instrumentalism of technology in society at large. References have been made to the transformative and transcendental promises and beliefs in technology, but I would like to consolidate some of my thoughts and observations in this area. This section will therefore narrow in on the following questions: 1. what promises does the technology myth hold out before us in terms of actual spiritual transcendence and not just "change?" and; 2. what are the effects of these promises on the human spirit and condition?

Perhaps the loftiest and most important promise made by the god of technology is that it can overcome the afflictions of the world and, moreover, that it stands alone in this regard. I illustrated this belief earlier in quoting Glenn Cartwright who sees humanity as standing at the dawn of a new era in which we, by the grace of computers, will evolve to a higher plane of existence marked by superior intelligence, improved understanding, and greater harmony, etc. We noted too that Jon Katz sees the world's information as being liberated, and so, as a consequence, are we. Like Katz and Cartwright, Chris Morton also bears witness to the significant deference paid to the divinity of the computer which he says is a symbol of the future and all that is good about it. The promise to which such piety is given in response to is that technology is deliverance.

This, however, begs the question, Deliverance from what? The response here seems to matter little, however, as the problem to which technology is the answer is not one, but many. Technology is capable of providing immediate and concrete rewards. I can make quick and easy money trading stocks on the Internet or improve my vision tomorrow with laser eye surgery. Even when what is hoped for is not immediate, however, we still do not turn our backs on technology. I am sure I am not the first car owner who has hypocritically transferred the responsibility of sewing up the hole in the ozone layer to the technology-god while I continue along in my car. I wonder if our hope for technology

is that it might redeem itself in spite of us, rather than the individual redeeming himself/herself *vis-à-vis* technology. After all, is it not more fitting to leave something so overwhelmingly beyond any one person to something equally infinite and indefinite? Metaphorically, it is quite appealing for many to cling to technology in a clash of the Titans with worldly ills, rather than to bet on the David within ourselves to defeat the Goliath we created.

The salvation the technology-god offers humanity and its planet may occur in one's lifetime, but it is also an offer that does not expire "down the road," whether this be for future generations or posthumously for ourselves. Morris describes how "the phenomenon of cyber euphoria is not motivated by strictly utilitarian or material concerns, but by a spiritual quest for transcendence" (2001, p. 166).

Unlike Postman who speaks of the here-and-now rewards of technology (1995, p. 10), Morris follows the penetration of the myth into the realm of spirituality by its association with immortality: "Cyber-enthusiasts are dreaming of nothing less than cyber-resurrection and immortality" (2001, p. 166). Supporting this contention, Morris quotes Margaret Wertheim whose book, *The Pearly Gates of Cyberspace,* is but one of a number of thinkers challenging the hegemony of technology on our minds and hearts: "'Should you die,' writes one enthusiast, 'an active copy made from (stored computer) tape could resume your life' [...] 'With contemporary dreams of cyber-mortality and cyber-resurrection' we are witnessing 'the reemergence of something not dissimilar to the old medieval Christian soul... a new version of the old belief that humans are bipolar beings... with mortal material bodies and an immortal immaterial essence...'" (Wertheim, M as cited in Morris, 2001, p. 166). Morris feels that this is a revival of the the Gnostic spiritual dream to escape the mortal corruptible body, except that the divinely revealed *gnosis* is somewhere out there in cyberspace.

Like Morris, Wertheim argues that the appeal is greater than mere usefulness, quoting one philosopher who describes our love affair with cyberspace as "more deeply spiritual than

utilitarian" (Heim, M. as cited in Wertheim, 1999, p. 19). Her thesis is that cyberspace is an "idealized realm 'above' and 'beyond' the troubled material world...a transcendent haven...a disembodied paradise of souls" (pp. 18-19) where we can "eat of the Tree and not be punished..." (p. 20). She wonders what it is that creates such a hospitable climate for the deification of cyberspace and throws out the possibility that the American Empire is fragmenting (possibly due to globalism), ending a "Pax Americana" which is intensifying our spiritual yearnings (p. 23). The appeal of cyberspace lies in its secular and technologically-sanctioned trappings, as well as the nature of the medium whose anonymity and disembodiment is "the relief it provides from the relentless bodily scrutiny" (p. 25) of gender, colour, age, etc. This is, as Morris states, the Gnostic dream of escaping the flesh. The Net, she adds, "is being sold as a panacea that will fill the communal vacuum in our lives..." (p. 26).

An excellent illustration of what Wertheim describes is a movement known as *Transhumanism* and its offshoot *Extropianism*. It represents the technology-god's bid to conquer the final frontier. In the section on "Perpetual Progress" of "Extropian Principles Version 3.0," it is declared that:

> We do not accept the undesirable aspects of the human condition. We challenge natural and traditional limitations on our possibilities. We champion the use of science and technology to eradicate constraints on lifespan, intelligence, personal vitality, and freedom. We recognize the absurdity of meekly accepting "natural" limits to our life spans. We expect life to move beyond the confines of the Earth—the cradle of human and transhuman intelligence—to inhabit the cosmos (Max Moore, Extropy Institute, http://www.extropy.org/extprn3.htm).

For Transhumanists, the human condition is inherently flawed by its "natural" limitations

on the mind, affect, and body. Although they seem to repudiate spirituality, all the (con)quests they identify as necessary are inextricably tied to notions of spiritual transcendence, such as the need to "inhabit the cosmos" and to overcome the "constraints on lifespan." The former marks a spiritual yearning to connect with the infinite, while the latter suggests an existential unrest in the finite body or a view of bodily decline as undignified and meaningless.

In the Ages of Ages

Like the God of the Bible, the technology-god has the ability to engender in its faithful the belief that it is immortal. It works for humanity tirelessly, day after day and promises that it will continue to do so long after we are gone. In its preponderance and in the momentum of its "forthright determinism" (Postman, 1995, p. 39) in whose path most simply surrender, we all tacitly, if not explicitly and triumphantly, acknowledge the continued existence of the technology-god beyond our own. We all know better than deny that specific technologies, such as the alphabet, have been around for a long time before us and show no signs of extinction. The technology-god, however, is a larger and more abstract entity. Whether it be an imperative of the human spirit or of the human oeuvre, it looms large in our collective imaginations as that which might be capable of bettering society on a global scale. Although it makes for a terrific paradox, people vest in the technology-god the ability to undo its own damage, making this myth a self-perpetuating one:

> Human population and our technological advances are increasing exponentially and, if the predictions of many scientists are borne out, so will our problems—widespread famine, massive shortages of clean water, unstoppable viruses, flooding, global warming (or cooling), a vanishing natural environment and mass extinction. Meanwhile, technology promises to solve these problems—feed the

> world, eliminate industrial waste, clean up the environment, predict climates and earthquakes, reduce human suffering and extend human life. In the short run, low tech will not replace high, if only because we need increasingly sophisticated technologies to solve the very problems technology created (Naisbitt and Naisbitt, 2000, p. 77).

"Technologists," says Stoll, "see technology as a solution, never as a problem" (p. 26). One such technologist, David Warlick, writes:

> The last few decades for much of the developed world has had the appearance of an unraveling social fabric. Yet, it is with the very circumstances that initiated the turmoil of our society that our best hope resides. Computer technology, and the opportunities that it offers, can become the thread with which we stitch our fabric back together again (1999, p. 18).

Technologists like Warlick seem acutely aware of the anxiety caused by the flux of technological change. Robert K. Logan, author of *The Fifth Language: Learning and Living in the Computer Age* (1995), acknowledges the struggle implicit in such destabilization:

> We are desperately trying to establish a balance... Our collective response [...] has taken the interesting form of both [...] embracing the use of computers [...] and at the same time attempting to return to some of the values of our past by reengineering our businesses, restructuring our government [...] reforming our education system, and renewing our spirituality (pp. 212-213).

The balance they acknowledge never seems, however, to include any reorientation to technology, and serves, rather, as a justification to continue along the present path with renewed vigour. Logan continues his thoughts with the following:

> The key idea in all the schemes of renewal, reform, reengineering, and restructuring is that the (sic) relentless flow of information cannot and must not be stopped or even slowed down, but that it must be controlled and harnessed by the use of information-technology hardware, advanced software systems, expert systems, cybernetics, general systems theory, and artificial intelligence (p. 213).

In relying on technology to undo its own problems, to improve and extend human life, we too seek self-preservation, longevity and immortality, if not as an individual, then certainly as a race. Ironically, the one thing many technologies have demonstrated is their ephemerality, with "high tech" waxing and then waning to "low tech," we believe in it to solve the most permanent and enduring of our concerns. Taylor addresses the modern dissolution of permanence which comes under attack in a world of commodities. Here he quotes Hanna Arendt who compares the past with modernity: "...the reality and reliability of the human world rest primarily on the fact that we are surrounded by things more permanent than the activity by which they are produced" (Arendt, 1959, p. 83, as cited in Taylor, 1991, p.7).

As Warlick states above, Technology has been capable of "unraveling social fabric" or unsettling "the reality and reliability," to borrow from Arendt. Unlike older technologies like the telephone and the automobile which have settled or locked into a predictable and stable position, Stewart Brand argues that computers, biotechnology and nanotechnology[18] are self-accelerating as "the products of their own processes enable

[18] Nanotechnology is a rapidly emerging field of scientific investigation which aims at bringing computerization to the smallest possible scale. For example, computerized robots called "nanobots" are hoped to one day use DNA as a medium, perhaps with the ability to "repair" human cells or tissue.

them to develop ever more rapidly. New computer chips are immediately put to use developing the next generation of more powerful ones; this is the inexorable acceleration known as Moore's law" (Brand, 2000, p. 76). Such a path, however, is seen by Brand as part of a Faustian bargain:

> Technologies with this property of perpetual self-accelerated development—sometimes termed "autocatalysis"—create conditions that are unstable, unpredictable, and unreliable. And since these particular autocatalytic technologies [computers, biotechnology and nanotechnology] drive whole sectors of society, there is a risk that civilization itself may become unstable, unpredictable and unreliable (p. 76).

The world we live in is one of flux, and this even technologists will agree to. It is characterized by making and doing, as epitomized by *homo faber*. It seems to me that the one quality of the world's major religions that appeals to our mortality is their timelessness and stability. The stories they tell have changed little over time in terms of their popular appeal and the meaning we derive from them; and the institutions that support them are also conservative in nature, possibly because their faithful do not want them to change, or at least, not too quickly. There is something reassuring and comforting in things that can withstand the test of time and in things perceived as impregnable to the interventions and machinations of humanity. Truths that are subject to change are difficult to defend as absolute, immutable and beyond the capacity of humanity to debunk or redefine. Based on his reading of Arendt, Morris describes how we have difficulty relating to that which has not passed through our hands:

> Prior to the modern age, as far back as Plato and Aristotle, contemplation and being were given primacy over making and doing. Truth was seen as something given and revealed

> in the stillness and receptivity of contemplation. In modern times, with the rise of science, industrialization and technology, knowledge and truth are seen in much more pragmatic terms. Humans can only know what they themselves make. The modern person is *homo faber*, a maker and fabricator. I am what I make and do (Morris, in press).

There is a tremendous fulfillment to be gained in receiving insight which is not calculated, sought after or expected. Perhaps what we lose in our Faustian bargain with *homo faber* and the technology-god is the spiritual experience of serendipity. Huang Po muses on the state of receptivity Morris refers to above:

> Those who seek the truth by means of intellect and learning only get farther away from it. Not till your thoughts cease all their branching here and there, not till you abandon all thoughts of seeking for something, not till your mind is motionless as wood or stone, will you be on the right road to the Gate (Exley, 1996).

The famous monk and prolific writer on spirituality, Thomas Merton, reflects on what it is that Ho says we branch out to. For Merton, the artificiality of existence in a society beset by the media, technology and commodities keeps us living outside of ourselves:

> We live in a society whose whole policy is to excite every nerve in the human body and keep it at the highest pitch of artificial tension, to strain every human desire to the limit and to create as many new desires and synthetic passions as possible, in order to cater to them with the products of our factories and printing presses and movie studios and all

the rest (McDonnell, T. (Ed.), 1974, p. 53).

Merton's quotation reminds me of Blaise Pascal's famous aphorism about silence in an ironic sort of way: "The eternal silence of these infinite spaces fills me with dread" (Pascal, 1996, p. 158). Today's technological reality seems to transpose the existential dissonance humanity has traditionally experienced. With the Internet, and other manifestations of the technology-god, it is the eternal stimuli of infinite networks that fill some of us with dread.

It seems that there is a profound disconnection with the sources of the inner self which stems from living from without; it is what Palmer refers to as the divided life which in which "meaningful change comes not from the human heart but from factors external to ourselves" (1998, p. 19). Aleksandr Solzhenitsyn echoes this sentiment in attributing the stagnation in spiritual growth to technocentric progress and empty novelties. We labour under the illusion that the passions technology arouses will bring satisfaction and meaning, but ends instead in doubt and confusion:

> The victory of technological civilization has also instilled a spiritual insecurity in us. Its gifts enrich, but enslave us as well. All is interests—we must not neglect our interests—all is a struggle for material things; but an inner voice tells us that we have lost something pure, elevated, and fragile. We have ceased to see the purpose (1995, p. 9).

Solzhenitsyn's point that technology is affecting us in manifold ways has been argued more than once. Herbert London echoes Solzhenitsyn on the topic of enslavement: "While technological introduction was initially free choice, its widespread use and the dependency that use creates, fosters a form of social dictatorship" (2000, p. 32). Postman adds that "new technologies do not, by and large, *increase* people's options but do just the opposite" (1993, p. 2, cf. also Gutstein, 1999). He argues London's point,

citing an "imperialistic thrust" which eliminates choices such as traveling to Europe by boat, buying a (vinyl) music record or getting a job with a newspaper without knowledge of a word processor.

The Speed Trap and the Complex Web we Weave

If we have lost something important in our pursuit of technology's promised land, it may be that while we are stimulated to fever pitch as Merton suggests, we have also chosen a convoluted lifestyle and break-neck existence. Life is increasingly complicated by the extent to which we struggle to keep pace with the changes ushered in with every new technology (Walljasper, 1997, p. 42). Our collective hyperactivity is rewarded as virtue. Doing too many things at once is something to note on a *curriculum vitae* as "multi-tasking!"

In the end, it is always our choice as to what and we do and how we do it, however, it has become even more difficult to swim against the currents of a society that sublimates speed and a schizoid lifestyle. Morris writes about the cultural hyperactivity that defines our times (2001, p. 171) which he traces to another notable technology critic, Albert Borgmann, whose book (1992) *Crossing the Postmodern Divide*, develops this notion and argues that a restless spirit makes it difficult to be tolerant of more placid people. The cost of this hyperactivity is the inability to be fully present to each other and to our work, and an impatience with difficulty and depth of meaning (Morris, in press). In response to the need for a slower and more balanced lifestyle, people are giving-up income to slow down and simplify life (Walljasper, p. 43).[19]

It is difficult to imagine hyperactivity without speed, and it is even more absurd to imagine the god of technology without speed. Stewart Brand was quoted above as describing technology, particularly computer technology, as self-accelerating and "autocatalytic." Indeed, speed is inherent to technology. Measurements of speed

[19] As I write this thesis, I am enjoying a paternal leave to help raise my son free from the demands of the job.

routinely serve as benchmarks for the value and performance of our computers, modems, Internet connections, etc. The Pentium chip or Apple's G4 processors are the badge a honour. We are, in short, caught in a speed trap and technology has helped provide us with the addiction to speed as well as the means of satisfying it.

Through speed, the promises of the technology-god are made magical and alluring. In an article on this very topic entitled, "The Speed Trap," Jay Walljasper posits that even the activists who are skeptical of the wonders of modern progress still fall prey to this trap:

> ...the folks who patiently remind us that small is beautiful and less is more, look upon speed as an asset in achieving a better society. Four-hundred-mile-an-hour trains, they assure us, will curtail pollution, and modem links across the planet will promote human rights (1997, p. 42).

Challenging this hegemony, he warns, "can get you lumped in with the Flat Earth Society as a hopelessly wrong-headed romantic..." (1997, p. 42). This would be heresy in the face of the technology-god.

Another critic of the speed myth, Dr. Stephan Rechtschaffen, identifies a phenomenon which I believe illustrates how technology insidiously creeps into our consciousness. It is an unconscious phenomenon known as "entrainment" which governs how various rhythms fall into synchronicity with one another (1997, p. 49). For example, two out-of-sync pendula set side by side will begin keeping time together. The same principle, says Rechtschaffen, applies to atomic particles, the tides and human beings. My wife swears that she and her female colleagues, with whom she works in close proximity, will begin before long to menstruate at the same time.

If there is such a physical law known as entrainment, imagine its implications for technology? Many of my colleagues have joked about the pace I walk around at work.

All joking aside, I have found that whenever I am closely involved with computers, my thought process and body movements speed up and my thoughts become fragmented. Maddux quotes a student of his (a preservice teacher) who, in response to his demonstrations of the Web and hypermedia said that the off-and-on nature of the experience made her "hyperactive" and "nervous" (1996, p. 29). Working with technology can be very stressful when our bodies and thoughts try to keep pace with the speed and complexity of what a computer can confront us with. Whether it is keeping up with the latest hardware or software updates, or just the volume of information, the sensation of being overwhelmed by computers is testimony to our entrainment to them.

What we chase, moreover, is as ephemeral as it is taunting. We think we can catch that which we seek, but seldom do. Take, for example, those who feel that they can solve computer problems. We fail to understand that inherent to technology are problems. As we solve old ones, new ones faithfully fall in their place. In technology, problems change, but they do not disappear. To believe that technology saves us time is also, I believe, deeply flawed (cf. Stoll, 1999, pp. 144-145). I have never found this to be so. Mergendoller notes how "the intriguing eclecticism of available information invites students to squander valuable school time" and drives home a point I argues earlier about opportunity cost: "Time spent on one pursuit is time *not* spent on another" (1997, p. 13). Another effect on time that I have noted is that technology makes it easier for us to believe that we can do more things in the time we have, often encouraging us to do many things at the same time resulting in our inability to focus on, much less enjoy, appreciate or be present to, the moment. Television manufacturers and broadcasters split our screens so that we can enjoy stock quotes or news reels while watching a sporting event.

Information Communications Technologies have made it hard to escape the world, to hide from information and commodities and seek asylum from their onslaught and oppression. It is difficult to retreat or take a "news fast" in order to return to a simplicity that energizes the spirit. It seems that silence and a singularity of focus are hard to come by. Recently I attended a wedding and a funeral. Both events had one thing in common: the

ring of a cell phone disturbing the solemnity of the day.

To help heal our fragmentation and frenzied existence, which Rechtschaffen calls "time sickness" and Logan calls "future shock" (1995, p. 212), we need to deliberately and consciously adjust our rhythms to other rhythms. In doing so, we might discover that if nature has different rhythms, then "why is it that we feel compelled to spend our lives moving at only one speed?" (p. 51). Such "timeshifting" requires will power, but it also calls for a renunciation in the potency of the technology myth which predicates efficacity and quality on speed. Recognizing this technological doctrine, Postman asks, "Will speed of response become, more than ever, a defining quality of intelligence" (1995, p. 41).

The Paradox of Connectivity: Connected Alienation

In examining the human impact of technology, whether it be time sickness or chasing illusions, the spiritual fallout always seems to end up in some form of alienation, from ourselves and from others. Parker Palmer's notion of a divided life in which we live for externals, unaware of ourselves, evokes a sense of disconnection and a lack of integrity in the sense that our life has meaning and is in harmony with our spirit. John Naisbitt's *High Tech, High Touch* (1999) examines the effects of technology on our lives and the trade-offs we make living in a "technologically intoxicated zone." Among the effects of technology on us—and especially on our children—are the blurring of the distinction between real and fake, and the acceptance of violence as normal in our lives. In our one-on-one relationship with our computers, for example, we are paradoxically isolated from the world just as we are "connected."

Karl Marx presaged how Industrialism would alienate the masses not only from the means of production, but from their bodies. There has been a definite increase in "Repetitive-Stress Injuries" in teenagers and young adults according to Margrit Bleeker, neurologist and director of Center for Occupational and Environmental Neurology in Baltimore (Vail, 2001, p. 16). In his article entitled, "Linking Sexuality and Spirituality in

Childhood: Beyond Body-Spirit Dualism and Towards an Education of the Inspirited Sensual Body," Morris relates how technology helps disenfranchise our body-self from our sensual-self. If we experience a simulated or virtual reality, then we live vicariously and give up something else. If we communicate through computers, we give up the joys of face-to-face interaction. If we race through life, we cannot discern the smells, sounds and moments that require presence and attention. If we do not challenge the myth of the technology-god, we alienate ourselves from other possibilities. Let us now have a look at how these ideas relate to education.

CHAPTER THREE: Information Communications Technology in Education

In this final chapter, I would like to explore both traditional or conventional forms of utilitarianism in education, beyond technology, as well as more recent technology-based forms. In particular, I will focus on how utility connects with a quest to not only adapt education to practical ends, but to lift us from societal ills and transcend the constraints of the classroom. It is very interesting to note that despite all the changes to the Quebec curricula in the Reforms, the fundamental utilitarian myth remains at the core of education, as it does in most school systems.

The God of Economic Utility in Education and the Information Age

We noted in Chapter Two that a "god of Economic Utility" (Postman, 1995, p. 27) is alive and well in education. As a university student, I remember how palpable and persistent was this obsession while I worked at my parents' downtown diner to help defray tuition fees. Patrons used to joke endlessly at my decision to pursue "higher education" in the Greek and Roman classics. "What will you *do* with that? was the question I grew accustomed to (and tired of) hearing every time I was asked what I was studying. Learning a dead language, after all, was the only thing that could be even more "useless" than an Arts degree in any other discipline. One man would reassure me that there was a demand for ancient Greek philosophers while another entertained his friends with the image of my university diploma hanging from the rear windshield of the taxi it destined me to drive. An education without market value, prestige or job potential was not only stupid, but shameful: Although I am sure I told my parents what I studied, they would tell customers that I was going to become a lawyer or a dentist!

Now that it has been a while since I managed to "do something" with my degree, I sit back and watch the same waves of utilitarianism, economic or otherwise, come crashing down on the shores of our schools. Not long ago, I observed a panel discussion on the Quebec education Reforms, consisting of a parent, a teacher, a principal and a board-level

administrator. Much of the discussion focused on the use of process portfolios, and the goals of the Reforms. Along the way, one member mentioned that Quebec has the "highest suicide rate in the Western world" in order to support the argument for major reforms to the education system.

Another panel member, a parent who worked as a banker, spoke of the positive results she noted in the Reforms in terms of how they seemed to focus on preparing kids for the "real" business world. Indeed, we are often told in education that we ought to follow the lead of business and industry where dynamic and innovative changes are taking place (cf. Davis, 1995). David Warlick, in *Raw Materials for the Mind: Teaching and Learning in Information and Technology Rich Schools*, predicates his whole argument for technology integration on the god of economic utility:

> It is largely economic systems that determine how people spend their time—what they do from hour to hour and day to day and what skills they need to contribute to their system. This, of course, is what our schools are for, preparing our students for their future times. [...] We are currently moving into an information-based economic system. Here, information is the basis of wealth, and networks are the source of these information raw materials. [...] They [principals and other administrators] are coming to realize that the information infrastructure is just as essential to their schools as heating and electricity (1999, pp. 3-4; 10).

Although these illustrations represent the beliefs of a few individuals, my experience tells me that they are also indicative of the popular belief that the goals of education are to fix problems that belong to all of society and to send kids into the work force with the right skills.

One need not look far within the "brick" (the popular term for the weighty document formally known as the *Quebec Education Program*) to discern two major and familiar themes: that of information and utility. "The Quebec Education Program opts for an approach that focuses not only on the acquisition of knowledge, but also on the utility of the knowledge acquired" (p. 3). The Reforms describe a competency as a cluster of behaviours (beyond task-specific skills) that intimately relate to "useful and meaningful" contexts (p. 5). As one reads on, it becomes clear that "learning" is only achieved when it acquires utility since:

> a competency is based on the mobilization of resources, the targeted learnings must *necessarily* be related to their *use*, and only acquire the status of resources to the extent that the students can *mobilize* them in relevant situations (p. 5). (my emphasis)

As a teacher, my enthusiasm for teaching was always deflated precisely during such moments when some brave (or bored) student, knowing that the sign of "true" learning was its utility, would ask, "Sir, what's the point in learning that?" With shoulders slumped, I would have to reassure myself that *all* teachers face this weighty and oppressive question, to which the impassioned and privileged few could respond, "For the love of learning, of course...?" or, "For something one cannot express in words or even actions..." For the rest, the response might be, "Because it is in the curriculum and there's a test on it Friday!"

Either way, the question had to meet or defeat the fierce criterion of utility, a value and metanarrative so thoroughly entrenched in education that it had the power to turn a student off of learning right there on the spot. To respond unconvincingly could set the tone for a very long time. In the face of a student who is socialized to believe that "education equals job" or "learning means doing," it is more than a challenge to break the

utility myth in one witty quip.

To see young children mimicking the preoccupations and anxieties projected upon them by adults is saddening, to say the least. Kids need more time and space to be kids, not less; more time and space for matters of the heart and of the spirit, and less information (Postman, 1995, pp. 42-43), less "brain-based learning"[20] and less "skills-of-the-21st-century" indoctrination. Parker Palmer articulates the malaise I am sure many educators feel:

> The profound human transactions called knowing, teaching, and learning are not just about information, and they're not just about getting jobs. They're about healing and wholeness. They're about empowerment, liberation, transcendence. They're about reclaiming the vitality of life (1997, p. 36).

Unfortunately, suggests Gutstein, we may still be counting on a techno-fix for political and social problems that we may be in denial about:

> Some teachers are not listening. As if in a mass trance, educators from coast to coast have seen the light and its name is information technology. Without computer skills, they attest in workshops that verge on religious revivals, their wards, once out of the schools, will be thrown on the dunghill of eternal joblessness. Salvation lies in learning those skills (p. 228).

[20] The term brain-based learning is one of the newest buzzwords that I have heard. It originates in the neurological study of the brain and how this impacts on the way we learn. Brain-based learning might suggest, for example, that it is a process more than an answer that a learner will remember and reapply in the future.

A Cult of Information?

As educators, we often fall into the technology-god's information trap. We assume that what kids need are more access to and control over information (through computers). As I alluded to earlier, the real challenge technology bequeathed to us is what to do with all of the information we are bombarded with, not to provide us with more (Postman, 1995, pp. 43-44). Research indicates that "technology is an equivocal blessing. Although it expedites our ability to access, share, manipulate and display information, it provides little or no guidance regarding the quality, relevance, or timeliness of the information processes" (Mergendoller, 1997, p. 14). Another way to approach the notion of guidance is for teachers to reclaim the heart of the matter—the reason for and value in coming together, physically and humanly, in the classroom.

Perhaps what sometimes keeps educators from answering this call is the belief that information is at the crux of the educational process. We believe in a line of reasoning that views information as knowledge and knowledge as power. Forgetting the value of wise and artful guidance, we sometimes fall prey to the magic power of technology in the face of which we feel inferior to in terms of engaging students' interests and providing good, timely information. Many of us (teachers) certainly do feel threatened by a network which we fear kids can access to find things that contradict what we say, go beyond what we can say (perhaps saying things better and more interestingly than we can) or even show kids that they do not need us to learn. Paralyzed by such fears, we either jump on board and immerse our students and ourselves in the "good stuff" or we shy away from it...but do we understand what is really at play?

Our drive to deliver distance education or class discussions via the Internet, for example, is one more way educators trivialize their role in education by obscuring the value of human interaction. We equate information with education. Doing so, as Stoll argues, can strip education of its inspiration, commitment and joy (p. 92). It also promotes the notion that we can solve problems from a (safe) distance (as we noted earlier with the

"Virtual Compassion Corps") and communicate authentically despite the distance. Because we can communicate across time zones, we sometimes also feel that we can transcend other limitations such as individual or national prejudices or commune with the almighty: "Scholars everywhere," mocks Stoll, "summon up the Internet: Just sign up, log on, and open your mind to a universe of information and power. Omniscience and omnipotence, right at your fingertips (p. 144).

Stoll makes a very interesting commentary on our equation of wisdom and knowledge. These two notions are "linked to scholarship, ideas, experience, maturity, judgment, perspective, and reflection. But they have little to do with information. Nor do they have much to do with power" (p. 143). Stoll cites Henry Thoreau who says about knowledge that it is mostly "a conceit that we know something, which robs us of the advantages of our actual ignorance" (cited in Stoll, p. 143). Spiritually speaking, Thoreau's insight adds an interesting perspective on the (Faustian) relationship between wisdom and knowledge since the ignorance we are "robbed" of in the pursuit of knowledge can be enriching and liberating in many ways. I am not necessarily speaking here of ignorance in the biblical sense of innocence or even bliss, but in taking a spiritual stance which allows us the humility and space to not know, or to acknowledge our limited knowledge, as well as the peacefulness that this form of resignation can afford us.

In his popular book on holistic and natural healing powers, Dr. Andrew Weil acknowledges that paying too much attention to news and information can bring about anxiety, rage, and other undesirable emotional and spiritual states that impede healing. He advocates "news fasting" which he justifies as follows:

> I think it is useful to broaden the concept of nutrition to include what we put into our consciousness as well. Many people do not exercise much control over that and as a result take in a lot of mental junk food (1997, p. 78). [...] I do want you to discover and make use of the fact that you

> have choice as to how much news you allow into your consciousness, especially if it disturbs your emotional and spiritual equilibrium (p. 171).

This notion is echoed in Chinese Philosophy in a tale called "The Woodcarver" in *The Way of Chuang Tzu.* In it, a master carver (Khing) is ordered to sculpt a bell stand from wood by Prince Lu. Under the stress of displeasing the Prince, Khing sets out to sculpt a beautiful bell stand, but before doing so he begins by fasting which allows him "to forget and therefore abstain from all sorts of psychic 'junk food'—gain and success, praise and criticism... The woodcarver's real fasting is his active refusal to ingest, to internalize, the poisoned baits that can kill the spirit of right action" (Palmer, 1990, pp. 60-61). The story ends with a bell stand so skillfully and beautifully crafted that the it astonishes the Prince. Palmer reflects on the centrality of forgetting in this story, and how in his own teaching experience over-consciousness to information rendered him deaf to his students' questions (p. 61). By forgetting, Palmer contends, we can "re-member, to unite with that hidden wholeness in us and in our world that is so easily torn apart by powers within and around us" (p. 63). Information communications technologies, I would think, are amongst the powers Parker would refer be referring to.

As a new parent, my wife and I began to immerse ourselves in copious amounts of parenting literature. Perhaps the only "useful" piece of information was the one time I was told to trust in my own instincts:

> Regretfully, many parents today are victims of information overload. When they're expecting, they read magazines and books, do research, scour the Internet, listen to friends and family and specialists of all sorts. These are all valuable resources, but the time the baby comes along, new parents are often more confused than when they started. Worse still, their own common sense has been drowned out by

other people's ideas (Hogg, 2001, p. 10).

The key idea here, as I see it, is that information is sought outside, while wisdom is sought within; inundated with information, we can stop listening to our inner voice as Palmer warns. This has implications for technology and education: how conducive are computers to self-empowerment, self-reliance, creativity, intuition and innate instinctiveness? Can our students rely on themselves when they are being exposed to technology at a younger age than ever before?

There is ample evidence that, early on, the technology-god is pushing our children outside of themselves towards a box with magical powers. Software called "Jump Start Baby" targets nine to twenty month-olds, but "My First Mouse" is for six month-olds and up. Ann Stephens, president of PC Data, comments that,

> It's funny to hear parents say they are doing this because they want their kids to be computer literate. Well, their kids aren't literate: They can't read. They can't speak, walk, do lots of things. The idea is laughable. And it puts a lot of pressure on those kids almost from birth (Nolen, 2000, p. R1).

Jane Healy, an educational psychologist and author of *Failure to Connect: How Computers Affect Our Children's Minds—For Better and Worse*, argues that children (especially toddlers) need to experience the sights, sounds and smells of the real world:

> To replace this kind of vital experience with pointing and clicking on a two-dimensional computer screen may seriously impair brain development. The immature human brain neither needs nor profits from attempts to 'jump-start' it. Simply selecting and watching a screen is a pallid

> substitute for real mental activity (cited in Nolen, 2000, p. R3).

I would like to return to the earlier allusion to information and its relationship to power. Real power, argues Stoll, comes not from information or computer skills, but from social skills. I believe he makes a monumental statement in acknowledging that...

> Leadership grows from the ability to listen to many sides and make compromises. [...] Social skills. Strength of character. Trust. Determination. Perseverance. Not traits downloadable from a Web site (p. 143).

Stoll goes on to write that there is an ocean between information and knowledge. Beyond knowledge lies what our goal ought to be: wisdom. Information may be useful, but it is generally not valuable (p. 186). If we do not make the distinction between information and wisdom, not just intellectually, but spiritually, then the technology-god will threaten to make school obsolete (cf. Postman, 1995, p. 43). Parker Palmer writes:

> As a teacher, I have seen the price we pay for a system of education so fearful of things spiritual that it fails to address the real issues of our lives—dispensing facts at the expense of wisdom. The price is a school system that alienates and dulls us, that graduates young people who have had no mentoring in the questions that both enliven and vex the human spirit (1998/99, p. 6).

Information and Panacea

A fact-based, utilitarian and salvationist ethic has shown its colours in several areas and in many ways is the truest "cross-curricular" thread in education. It makes a particularly

strong appearance in sexuality education. Morris, in *Values in Sexuality Education* (1994), describes how pervasive the "Just-say-no" slogan is in sexuality education where an information-based[21] approach and decision-making ethic are still part of a utilitarian or "crisis-instrumental" crusade to eradicate teenage pregnancy and the spread of sexually transmitted diseases.

Since the emphasis is on problems and the "crisis" of teen sexuality, kids are saddled by the projections and needs imposed by the adult world at large. Morris argues that it becomes difficult to explore all that is enriching and enjoyable about one's sexuality in this type of approach to sexuality. He wonders what there is that kids can say "yes" to in affirming their sexuality (p. 17). What is useful—or valuable, rather—is not that the individual embrace his/her sexuality, but a knowledge of the incidence of chlamydia or teen abortions and the methods by which they might be brought under control. Morris argues, moreover, that the traditional locus of the "solutions" lie not so much on the same (societal) level of the problem(s), but mainly in one institution—education:

> The reliance on classroom techniques to solve problems like STDs (or drugs, violence, and illiteracy) assumes that education is something that occurs primarily, if not exclusively, in classrooms. It places an extraordinary burden on teachers, and obscures the educational role and responsibilities of the school as a whole, of families, the work place, the mass media, the business world, and the state. (p. 16)

The Reforms themselves begin with the statement:

> In the developed world, school is the main channel through which society's scientific, literary, cultural and artistic heritage is passed on to the next generation. School is the

[21] cf. Katz's reference to "fact-based" knowledge in Chapter Two.

> place where students are imbued with their culture, where they develop new ways of adapting to society and continue their efforts to understand the world (p. 3).

If it were not for the extent to which this philosophy serves as the basis for scapegoating social disease and economic ends, then I might spend more time discussing its relative merits.

Many others have illustrated how this premise has resulted in the responsibility of saving the world. It is commonplace, after all, for schools to be equated with social panacea. In "The Politics of Recognition" (1994), Charles Taylor writes that, "The main locus of this debate [on multiculturalism] is the world of education in a broad sense" (p. 97). He describes how the university and high school have been delegated the job of restoring the esteem and identity of marginalized and oppressed groups through revised curricula. Postman also discusses what he considers the "false god of multiculturalism"[22] whose proponents believe is a battle to be waged primarily in schools which are considered "one of the last institutional terrains of white, patriarchal, ruling-class hegemony" (1995, p. 51-53).

What Taylor and Postman note for multiculturalism, holds true for educational technology. John Mergendoller relates an experience at an Educational Summit where "the nation's governors and business leaders, *(sic)* enchanted by multimedia demonstrations and real-time video conferencing, advocated educational technology as an essential solution for the complex problems facing education" (1997, p. 12). I quoted Parker Palmer earlier in saying that "We believe that for every problem there is some sort of technical fix" (1998, p. 19). Although Palmer's statement was made in the context of our bedazzlement with technology's power over reality, it applies equally to other educational gods, "tools," programs, and the like. This is the case, moreover, even if the technology-god has most (master)fully appropriated this utilitarian myth like no other

[22] Postman argues that there is a significant semantic difference between "multiculturalism" and "cultural pluralism;" the former being a false god, while the latter being legitimate and worthy of pursuit (p. 50)

god in education. Technology or no technology, the larger utilitarian god knows no limits:

> Teachers make an easy target, for they are such a common species and so powerless to strike back. We blame teachers for being unable to cure social ills that no one knows how to treat; we insist that they instantly adopt whatever "solution" has most recently been concocted by our national panacea machine; and in the process, we demoralize, even paralyze, the very teachers who could help us find our way (Palmer, p. 3).

Elliott Eisner describes the vast and "useful" array of techniques that abound in education for improving just about anything that can go wrong in schools and society:

> For better teaching there is the Hunter approach (1982). For improved curriculum there is the Dunn method (1978). For the development of mental skills, there is the 4Mat System (McCarthy, 1987). For improved classroom discipline, there is the aversive discipline approach. There is, it seems, a solution for every problem, and yet the problems remain (p. 10).

New teachers beware: your success may just be measured by how broad your shoulders are and how strong your neck is since schools carry the albatross of an institution society has traditionally mandated to fix its misery and machinery. When it comes to ICT, however, not only is it perceived as the remedy for wider social ills, it is often viewed as the schools' own sole means of survival. Viewed through the "crisis-instrumental" paradigm Morris refers to above for sexuality education, Gutstein speaks to this phenomenon linking ICT and education:

> After budgets were cut and the education community thrown into a state of crisis, the next step was to promote information technology in schools as a way to take up the slack...prescribing technology (and private sector partnerships) as the remedy for the deficit 'disease.' [...] The results of these experiments will be better educational services, improved availability, and quality of education. We can do better with less if we embrace information technology (1999, p. 201).

Teaching: An Art or a Science?

One implication behind the utilitarian rhetoric is a familiar positivist assumption that teaching is more a science than an art. The belief that education can repair, serve and deliver renders the act of teaching something technical in nature and, as such, teachers can be trained to constantly "retool" themselves, their classrooms and, ultimately, their students, to the specifications of the machine that they must maintain.

Quebec's new Reforms are fraught with new techniques and pedagogical orientations, not the least of which is the "cross-curricular methodological competency" of ICT integration. Parker Palmer challenges such orientations which rest on the premise that teaching is technical, and that its transformation does not begin from, or at least include, the depths of the teacher's personal life. He asks, "How can we reclaim our hearts, for the sake of our students, ourselves, and educational reform?" and adds, "That simple question challenges the assumption that drives most reform—that meaningful change comes not from the human heart but from factors external to ourselves, from budgets, methodologies, curricula, and institutional restructuring" (1998, p. 19).

Teachers are being told that through their intercession, largely through technology-based information brokerage, they can effect important change:

> By collaborating beyond the classroom, learning to use the unique qualities of Internet-based information, and providing students with real audiences for their work we will raise the windows and pull down the walls of our classrooms, connecting to our community, both local and global (Warlick, 1999, p. 18).

I can just hear all the unarticulated rumblings of teachers who hear such things... "Is 'Internet-based information' really that which will touch the heart of my kids so that they will even want to connect with their peers or their own families, much less their community?" "But what about collaborating *within* the classroom?" "But aren't the *other students* in the class a 'real' audience?" "In 'raising the windows' with technology, am I to feel that my classroom was hitherto a *cave?*" In response to such blow-down-the-walls discourse, one observer writes, "But for most students, learning is maximized under appropriately constrained and structured conditions (Mergendoller, 1997, p. 13).

If teaching is essentially technical and instrumental, then it is stripped of a certain intellectualism and critical element, not to mention other paths to the inner landscape of the teaching self, such as the emotional and spiritual (Palmer, 1998, p. 4). Computer literacy becomes a matter of using computers. It does not include a discussion of how they use us.[23] Henry Giroux expresses his anguish over the fettering of Faculties of Education to management issues and the anti-intellectualism that keeps us from understanding the processes by which teachers take on sensitive political and ethical roles as public intellectuals. (cf. esp. pp. 232, 237 and 245).

If the technology-god steals our attention and quashes debate to itself, then we focus on how to use it, not how it can use us or render disservice. After all, the mere "presence [of computers] does not automatically lead to more critical thinking, richer understanding, or increased student achievement...They are *not* the magic bullet that will transform

[23] I will return to this notion at the end of this paper.

schooling" (Mergendoller, 1997, p. 12). Clifford Stoll quotes mathematician Neal Koblitz in arguing the anti-intellectual appeal to the technology-god: "They're used in the classroom in a way that fosters a golly-gee-whiz attitude that sees science as a magical black box, rather than as an area of critical thinking. Instead of asking whether or not technology can support the curriculum, educators find ways to squeeze the curriculum into a mold so that computers and calculators can be used" (1999, p. 6).

On this point, Douglas Noble argues that "market fantasies"[24] and intense competition, not any concern for education, have made computer development and marketing madness in schools producer-driven: "The hubris of these corporate leaders is their self-appointed role to 'save' education, to pursue the holy grail of electronic teaching..." (1996, p. 19). I would add, however, that there is a huge level of willingness on the part of educators and stakeholders to squeeze the innovations of business into the curriculum, as we noted earlier in our piety to the god of economic utility. Gutstein makes this point brilliantly in *e.con.*

Indeed, I remember being part of a group of teachers that was given the task of spending a significant sum of money which was earmarked for computers. This money was part of a ministerial allocation (known as "Mesure 50590") that effectively resulted in the allocation of $57 per pupil per annum over five years to every public school in Quebec[25] (Ministère de l'Éducation du Québec, 2000b, p. 22). In some ways, it sealed the fate of every school which was suddenly offered significant funds that would be ludicrous and shameful to turn down, especially with other budgets frozen.

Since Mesure 50590 was a use-it-or-lose-it proposition that limited spending to computer hardware, schools embarked in a Faustian bargain that forever changed their orientation to

[24] cf. Lewis Lapham's (August, 2000) article "School Bells" in *Harper's Magazine* 301(1803) where he writes about commercial madness, offering one example about a company that has an agreement which "requires a million students in forty-five states to spend four hours a day in front of a computer screen that flashes commercial messages... Three times a year they must bring their parents a marketing packet that installs the same software in their computers at home" (p. 8).

[25] cf. http://www.eduq.risq.net/DRD/planific/en_ligne/regle96.html

technology. Firstly, the Ministry funding required that the School Board invest a sum towards ICT equipment that would represent no less than 30% of the total expenditure. Therefore the Ministry's $39.40/pupil was met with approximately $16.89/pupil by school boards for a total of approximately $57/pupil.[26] With these monies, schools established major technological infrastructures (e.g. Internet cabling) and apparatus (e.g. school servers) that necessitated board- and school-level reorientations in terms of day-to-day technical maintenance, continued expenditures[27] due to built-in obsolescence, policies for usage and the "how-to" of pedagogical integration, which created a need for teacher training (both pedagogical and technical), "release time" and the like.

The ministry funding did sometimes result in frivolous purchasing based less on actual needs than spending for the sake of spending and using computers because they were being "tossed your way." Kids love computers because they entertain.[28] Parents love them because they believe that they are indispensable, and educators seem to react in favor of the technology-god rather than take a leadership role, partly because there is no safe place to raise any doubts and also because we have invested so profoundly into the myth that it has become difficult to see beyond its horizon. Stoll reminds us all that if we want a nation of dolts, then we need "Just center the curriculum on technology—teach with videos, computers, and multimedia systems. Aim for the highest possible scores on standardized tests. Push aside such less vocationally applicable subjects as music, art, and history. Dolts are what we'll get" (p. 6).

The reality in education is that many teachers are sold on the notion that technology is an

[26] cf. http://www.eduq.risq.net/DRD/planific/en_ligne/regpub99.html

[27] It will be interesting to see how school survive now that they will have to be weaned off of five years of ministerial technology nurturing.

[28] cf. Abrami, P., Wozney, A. and Venkatesh, V. (2001). *Technology Integration Questionnaire: Report on Results.* Centre for the Study of Learning and Performance. Montreal: Concordia University. This recent (August, 2001) survey on technology in pre-collegial education in Quebec polled 764 teachers from 101 schools and found that despite a relatively low margin (21%) of frequent computer integration in teaching activities (p. 8), teachers' attitudes were "generally positive towards computer technology integration" (p. 3) with 83% responding in (various degrees of) agreement to the statement: "The use of computer technology in the classroom is an effective tool for students of all abilities" (p. 7).

effective tool for teaching, even if they themselves do not use technology (Abrami, Wozney, and Venkatesh, 2001).[29] (Non-users do not necessarily challenge the myth. I would contend that more often than not, they avoid technology out fear of required admission of ignorance and embarrassment in having to learn skills that many of their students already possess). Roblyer, Edwards, Havriluk (1997) state that:

> Many educators seem to believe that they cannot make curriculum reflect constructivist characteristics *without* technology. Constructivists offer this combination of problem-oriented activities, cooperative group work, tasks related to students' interests and backgrounds, and highly visual formats provided by technology resources as components of a powerful antidote to some of the country's most pervasive and recalcitrant social and educational problems (p. 73).

The phenomenon articulated above represents a sort of "package deal" sold to teachers. It illustrates how technology can wrap itself around other change, and present itself as part and parcel of what must be embraced for educational transformation. Teachers believing that technology is the medium and agent of all pedagogical change is but one example of Postman's fifth of ten principles that "Technological change is not additive; it is ecological. A new technology does not merely add something; it changes everything" (1995, p. 192). This principle also applies to the example I cited earlier about the five-year funding which I believe changed everything about the status of technology in schools. It created a domino effect wafting its way through the entire playing field in Quebec's school system.

The god of technology, as I hope I have made the case, not only proclaims itself to be a key player in educational reform, but shrouds itself with wider delusions of grandeur: The

[29] A former principal in my school categorically refused to use a computer, but was an ardent supporter of technology in the school. "You can't teach an old dog new tricks" was what he would say while at the same time expecting teaching staff, young or old, to embark on the pathway of the technology-god.

philosophy of Constructivism is achieved through the agency of technology which helps to solve "recalcitrant social (as well as educational) problems" one could not begin to imagine. It is not difficult to draw the connection between such thinking and religious dogma. Can we not legitimately ask whether such a belief system is actually empowering or oppressive to the teacher?

Again, good teaching cannot be reduced to technique. It cannot be stated emphatically enough that good teaching "comes from the identity and integrity of the teacher" (Palmer, 1998, p. 10). Good teachers know how to join self and subject in an integral whole that speaks to the student as a person. Postman sums it up nicely:

> As an old saying goes, there are one and twenty ways to sing the tribal lays, and all of them are correct. [...] There is no one who can say that this or that is the best way to know things, to feel things, to see things, to remember things, to apply things, to connect things and that no other will do as well. In fact, to make such a claim is to trivialize learning, to reduce it to a mechanical skill (1995, p. 3).

A technopoly over teaching, however, threatens to do just that—render teaching and learning to a technocratic recipe book.

The Technology-god and "Edutainment"

One important way in which we trivialize education and reduce teaching to mechanical skills is the way we associate it with fun and games. This is particularly true of the role of technology in education. David Warlick compares two learning activities: his daughter's homework that requires her to memorize a classification of nouns and his son's "unguided exploration" of a video game for which he does not possess the manual or instructions:

> ...between the two activities, [...] my son was developing skills that will be more relevant to his future, a future of constant change. His game playing turns out to be a very good model for their future workplace, where they will constantly be adapting to new information, new rules, new tools, and new goals. They will be successful if they learn to see the changing environment as opportunity—it's a video game! (1999, p. 17)

The clichés that abound in this excerpt are tiresome. Firstly, there is the stale reduction of learning for the sake of the workplace along with the claim that this is what the future is all about. Secondly, Warlick's notion that technology has enabled or forced information to increase in volume and change so rapidly that we cannot keep up has been made before (cf. Roblyer, Edwards, & Havriluk, 1997, pp. 54-79). The implication for education, as Warlick would have it, is that we focus on and value learning how to learn rather than learning a set of skills or body of information which is bound to change (p. 55). I agree that a metacognitive awareness of one's learning is valuable, however, we cannot use this as a justification for the argument that content must give way to form or processes and that knowledge is essentially ephemeral. Like Warlick, Don Tapscott describes innovation as "continual renewal" which:

> ...drives every aspect of economic and social life. [...] Innovation is also beginning to drive education curricula. [...] In the old economy, a curriculum was good for years and careers. In the new economy, to be relevant the education system must constantly change content, instructional tools, and approaches" (pp. 60-61).

In more than one philosophical discussion about the Quebec Reforms and Constructivism

in education, it has been suggested to me that the content our students are presented is viewed as much (if not more) as a medium for learning other skills (e.g. organizational, communicative, technological, analytical) than for any inherent value of its own. It matters less—or so I have been told—what our kids are learning, so long as they are learning in the right way. Robert Logan writes: "The primary focus of school becomes the development of the generic cognitive skills associated with the five modes of language, whereas the mastery of of any particular body of knowledge becomes a secondary goal" (1995, p. 241). The fifth language he speaks of, as the title to his book suggests, is computing.

One of the other important arguments for why methodologies and techniques for organizing information are placed on equal, if not greater, footing than any body of knowledge is because knowledge is changing at such a quick rate that, like computers, it may be obsolete by the time our students graduate. Technology has certainly proven this to us, but is there a built-in obsolescence to all knowledge as well? Will we discover soon that the Earth is no longer (more or less) a sphere or that vegetables are not good for us? What about the old adage that there is nothing new under the sun?

Some "knowledge," such as the nouns or language that Warlick's daughter is studying is likely not to change very much; and the means by which she is attempting to learn them is not necessarily less valuable than his son's "hands-on" trial-and-error approach, nor as diabolical as it may sound. In my experience of language acquisition, careful and methodical rote memorization, along with Whole Language learning-in-context approaches were equally beneficial, regardless of how laborious and painful this process may have been. To suggest this in the discourse of technology, however, is to expose one's self as a "back-to-the-basics" and "no-pain-no-gain" fundamentalist. Language skills, I must add, are amongst the most "marketable" and practical job-related skills one may acquire. Their content changes little and learning them is not fun, has few immediate rewards, nor does it approach anything like a video-game.

Aside from the game-like ephemerality of knowledge Warlick suggests, the other way that an information-based economy and technology-god entrains educators, as illustrated by Warlick's unfortunate comparison between his son's and daughter's learning, is that learning must be fun to be effective or enduring. Technology becomes one way, or perhaps *the* way to make learning both entertaining and efficient. In the QEP, the use of ICT is considered a "methodological cross-curricular competency:"

> Methodological competencies concern the use of effective work methods and of information and communications technologies (ICT) for learning purposes... By seeking better conditions in which to work, and choosing and applying appropriate strategies in all the subjects and areas of lifelong learning, students become increasingly autonomous learners (p. 28).

Here the assumption seems to be that ICT is "better" and leads to autonomy.

As for entertaining students, the power of the computer is such that, according to Stoll, it even threatens the utility myth itself: "...I'm concerned that computers and networks are promoted for their apparent utility, yet we mainly use them for entertainment"[30] (1999, p. xi). Amongst the promises the technology-god makes are "...shortcuts to higher grades and painless learning. Today's edutainment software comes shrink-wrapped in computing's magic mantra: 'Makes learning fun'" (p. 11).

Peering beyond the myth, Stoll asserts that most learning is not fun; that it takes work and discipline and that the payoff is not adrenalin, but something that only comes later. One of the lures of computers, however, is that they are an easy way for teachers to keep students busy (and quiet) as we pander to their desire for immediate gratification: "They

[30] cf. Article by Nicolas Van Praet entitled, "Internet 'success' is flawed: Kids are playing games, subsidized families say." *The Montreal Gazette,* March 7, 2001. It begins: "What the Quebec government would like to believe kids are doing on their computers as it doles out thousands of dollars in subsidies to families who want Internet connections: Research. What the children of three families the provincial government put us in contact with are really doing: Playing games" (p. A1).

[students] substitute quick answers and fast action for reflection and critical thinking. Thinking, after all, involves originality, concentration, and intention" (p. 13).

One Memphis Kindergarten teacher personifies a form of prostration which the technology-god engenders:

> For young children, computers are great motivators for learning. We're not the big authority we used to be. We are in big competition with special effects. We have to try to be entertaining. The computer is giving us a little bit of magic to put back in the classroom (Vail, 2000, p. 15).

I wonder just what was ever taken out of the classroom that created the void we seek to fill with technology. Sadly, her words have a ring of disempowerment, and a note of resignation. In some ways, educators and past generations are belittled by a god contemptuous of all that precedes the present or that which does not follow doctrines such as that of "edutainment:"

> While we assembled our reports with children's building blocks, today's students can craft their information products with word processors, enrich them with multimedia mined from the the Internet, and empower them with hypertext. Their work can be compelling and it can be published to a global community (Warlick, 1999, p. 119).

I would agree with Stoll who states that we are obsessed with turning education into a funhouse, but reminds us that "Many subjects aren't fun. I wonder how the fun-to-learn teacher handles the Holocaust, Rape of Nanking, or American slavery" (p. 18). This trivializing of learning reminds me of the celebrational discourse in multiculturalism which can obscure and belittle the pain and complexity of pluralistic situations. Rather than

addressing issues such as economic exploitation, value conflicts and power differentials, celebrating diversity paints happy faces where there may not be any. Chandra Mohanty argues:

> Difference seen as benign variation (diversity), for instance, rather than as conflict, struggle, or the threat of disruption, bypasses power as well as history to suggest a harmonious, empty pluralism. On the other hand, difference defined as asymmetrical and incommensurate cultural spheres situated within hierarchies of domination and resistance cannot be accommodated within a discourse of 'harmony in diversity.' (1990, p. 181).

On a spiritual plane, this trend in education may side-step important meaning-making moments in which we must learn the value of suffering and struggle no matter how impractical it may be. As Stoll writes, "What requires the least effort is least cherished. Yet somehow we expect a simple, easy, fun digital education to be both lasting and valuable" (p. 22).

Another way ICT are sold as fun and engaging is through "interactive" multimedia. With a click of the mouse, a user may receive something responding to his/her inquiries and communications, including voice recordings, digital video or animations, real-time on-line "chats" or e-mail. For all this "responsiveness," however, computers in many ways remain an essentially passive form of communication which may alienate us from ourselves. For one, consider what is lost in computer interaction as compared to face-to-face communication: the eye contact, hand gestures, the emotion and intonation behind words, the spontaneity, the effect of physical proximity, etc. In writing, there are also inherent differences between computer-mediated and conventional forms:

> Multimedia writing is not about telling a story. It's about

> telling fragments of stories, fragments that may or may not add up to anything. At the end of a project, you're left saturated and unfulfilled, ready to burst. Just as multimedia turns writers into hacks, it likewise stifles readers. The computer pushes us to fool around instead of digging for meaning in the text (Stoll, p. 58).

My wife once reacted to the interactivity mania driving computers in education by asking, "shouldn't kids learn to interact with themselves too?" Indeed, introspection is not something facilitated by technology. Furthermore, it is implied in technology-praising literature that technology has a monopoly on interactivity! Stoll reminds us, however, that even the worst teachers are more versatile and adaptable than the finest computer program and asks, "Aren't teachers interactive? It's hard to think of a classroom without interaction" (p. 21).

The interactivity smoke screen is but one way technology has stolen the credit of sound pedagogy and disempowered teachers. One article excerpted from the *The CAP Journal* argues that "technology allows students to gain knowledge at their own pace and makes it easy to adapt learning to students' individual needs" (SchoolNet, 2000, p. 37) and then offers two off-the-wall examples: 1. students don't have to copy notes so they can listen better; 2. instead of having all students cover the same material, teachers can form teams to research various aspects which they then share with one another; this way, they work harder and retain more knowledge. The former statement seems to disregard the possibility that a well structured lesson may be one reason why students are not required to take down volumes of notes. The latter, like the former, credits technology for something teachers can do without technology. The example offered is commonly known as team work or the "jig-saw" cooperative learning model and requires no special equipment!

The article, appropriately entitled, "The Future of Education is Broadband," belies my

hopes for balance on the topic of technology. It boasts that, "We have the technology [Broadband]; research indicates it's successful. What we really have to ensure is that educators possess the ICT skills required to use these new interactive teaching tools effectively." If I follow the logic correctly, I suppose the next step is to "fix" the teachers as everything else required for successful teaching seems already in place. "Once this is done, schools will be positioned to provide greater learning opportunities for all, regardless of location, time and social well-being." With a technocratic basis, schools can position themselves to level the playing field in terms of the socio-economic inequalities of their students, and can focus on reconfiguring their teachers (with ICT skills).

There are several who argue, however, that people are marginalized by technology no matter how democratic it comes across (Postman, 1992, 1995; Stoll, 1999; Robertson, 1998, Gutstein, 1999, London, 2000). Postman asserts that "it is generally understood by those who have studied the history of technology that technological change always produces winners and losers—which is to say that the benefits of new technologies are not distributed equally among the population" (1995, p. 47).

Gutstein warns that, "to succeed in the knowledge economy, we may have to give up our democratic rights" (p. 11) as "connectedness depends on digitizing and privatizing public information so they can form the basis of commercial transactions on the Internet" (p. 12). Earlier, Katz argued for value-free information as the basis of the Digital Nation's direct participation in a democracy. Not only is information not value-free, Gutstein argues that it is not free in the economic sense either! The trend of privatization of formerly public information resources undermines democracy as "only those with technical skills and the money to pay will have access to [...] information. The result may be two classes of people: the information rich and the information poor" (p. 22). He acknowledges that there is a lot of free information, but suggests that higher grade information will cost you. The notion that a poor inner city student having Net access at school as the great leveler or road to greater democracy ignores the bigger picture which he calls a form of (neo)colonialism (cf. chapter seven, "Colonizing New Markets: IBM goes

to School").

There is, nonetheless, a tremendous faith that education might prove the exception and a reductionism that seems to suggest that educational woes are really much simpler than we make them out to be. If we could only follow the electronic superhighway, moreover, it might transfigure the body of an otherwise decaying institution.

Solomon addresses the transcendence we educators sometimes attribute to technology in terms of its agency in student-centred and constructivist approaches we see in the Reforms: "Espousal even exists at the most fundamental levels as computer technology is seen as being able to transform instruction from the deplorable situation in which teachers deliver information to passive students to one in which students discover learning for themselves" (Solomon, 1992, p. 329). Common to the arguments presented above in which technology is credited with something owed to good teaching, however, is the fallacy that it is the computer that enables such shifts in thinking and which involves the student in the learning process. Olson's and Sullivan's research suggests that in all cases where computers were used effectively, there was considerable planning and artful construction by the teacher (Olson and Sullivan, 1993). Good teaching must be artful and humane, and responsible use of technology must position pedagogy first. In doing so, we must carefully evaluate whether or not technology is even appropriate to a learning moment, much less ponder how to best integrate it. We must assess whether it contributes positively and in what way or under what circumstances. We must help our students understand that technology has a flip-side.

Technology and the Alienation of the Inspirited Self

We noted earlier in the section on information that children, like adults, often rely on technology in acquiring information and solving problems, and noted the potential that this phenomenon has in terms of the expropriation of the spirit from the body. Softwares

like "Jump Start Baby" ask parents to declare, at an early age, their faith in the technolgy-god and may disenfranchise the spirit from the body-self, as well as from others, whether peers or adults (Vail, 2001, p. 15). "Connected" isolation of the student "surfing the Net" not only distracts children from play and hence their bodies, but the form-over-content thrust the medium often takes can distance children from their own imaginations:

> Images on the computer are so powerful that children feel unable to bring their own images out," says Almon. And blotting out children's imagination leaves them without access to their own ideas, she says, ultimately affecting the way they learn. [...] The images are so seductive and powerful that they distract children from using their bodies, make them dependent on outside stimulation, and rob them of the ability to rely on a rich inner world (p. 16).

The paradox of "connected" isolation or alienation is one that I alluded to earlier in quoting Taylor who described an instrumental-rationalist metanarrative as strengthening the "enframings that favour an atomist and instrumentalist stance to the world and others" (Taylor, p. 111). Computer "connectivity" promises us some kind of interaction or link with something "alive" and dynamic in the form of the Internet or multimedia which can change over time, be open-ended, and respond to our individual queries and communications.

The World Wide Web, it has been argued, provides a vehicle for 'high tech/high touch' and allows for a more closely connected world (Flake, 1996). Connected...in what sense? A global network of computers is almost a reality as even developing nations are slowly gaining access, but authors like Flake interpret "high tech/high touch" as meaning "the greater the technology, the greater the need for people to be in touch with people" (p. 93). Is it unreasonable to suggest that instantaneous e-mail contact still does not "connect" us in many senses? It goes without saying, moreover, that computers engage and focus our

attention on them in a way that isolates us from all that is around us. While connected, we are also fundamentally alienated, be that from live human contact, our own bodies, ideas and intuitions, some of our other senses and other modalities of learning, the constraints of real time and space, etc. Some observers cite concerns that the time children spend on the computer is taken away from interacting with each other and their teachers and that children with poor social skills often gravitate to the computer (Vail, 2001, p. 16). I can attest to this personally as a former lunch time supervisor of the computer lab where I often noted that many "loners" would seek refuge sitting in front of a computer.

The technology-god "has a bias toward amplifying personal autonomy and individual problem-solving" (Postman, 1995, p. 45) and, as such, we need to address the possibility that computers may in some ways declare war on a traditional and critical goal of the classroom—the inculcation of social values. Advocates of ICT proclaim the merits of "telecollaborative" learning which makes use of the Internet and Networks to share learning, student work, ideas, etc. I suppose this is one way to bond or interact with others, but is it the best way and does it really "tame the ego" as Postman writes?

As a child, I may be more apt to "share" my work via the Internet for the potent sense of instantaneous widespread publication, the fanciful thrill of some marvelous person in cyberspace actually being interested in it or the flattery that some expert acting as my "authentic audience" has taken the time to provide me with critical feedback. Why? Because it costs me nothing! From the student's point of view, it is not the kind of sharing that really shifts focus away from the ego nor does it require any great sacrifice or subordination of individual needs to group interests. Have me share my toys in Kindergarten, accept responsibility for my decisions in grade school or accommodate opposing views face-to-face in heated high school discussions on homosexuality and then we might see the struggle that is socialization and social cohesion. Just as Stoll argues against the sterility and safety of a "Virtual Compassion Corps," telecollaboration[31] is just that—collaboration from a (safe) distance.

[31] *Tele* is the Greek word meaning distant.

CONCLUSION

Summary

In this final section, I will raise related questions and issues that were perhaps beyond the scope of the present. First, however, I would like to synthesize some of the themes presented above. I began this thesis with a hypothetical tour of various stake-holders in education interacting with technology in various contexts. While hypothetical, my experience tells me that they are very real and plausible: educators sold on technology, asking few (if any) questions; teachers intimidated and mesmerized; kids encouraged to believe that technology adds substance to their work; future teachers scared into an ideological mould at the outset of their careers, etc. What is remarkably absent in all of this is any question of whether or not we are heading in the right direction. After all, this *is* a controversial topic. The sources I consulted I hope bear witness to this. In actual educational practices, professional development and institutional orientations, however, there is simply no significant indication that ICT in education is a Faustian bargain.

As my attempt to establish credibility on the topic, I outlined the various hats I have worn, most of which include some relationship to technology. At the same time, I feel that my background in the humanities and values education places me in a unique position from which I can embrace both sides of the coin. It should be said that I could go on and on about many wonderful possibilities and realities that technology has brought to education, but that I chose instead to focus on what I perceive as those that define the greater myth which deifies technology. As a myth, technology espouses a narrative that sweeps our minds and bodies, our institutions and our imaginations in a way that is barely visible to many and in a way that almost seems ridiculous when challenged. I know this with my heart. There really are few places to raise seriously critical questions about technology without seeming like a reactionary, a Luddite or anything more than someone fearful of change.

The goal in chapter two was to illustrate the extent to which this myth operates in society at large; that we are not dealing with an isolated phenomenon, but one entrenched at all levels and in many areas of our communities, from "jump-started" babies to aging cab drivers, from the world of medicine to the realm of spirituality. I traced a brief history of the intellectual forebears and groundwork to establish the birth of the myth, from the positivist flagship down to symbols like the computer and movements such as *Transhumanism*. The prevailing metaphor I adopted was that of a religion of technology in which a tremendous amount of hope and faith is vested.

My hope by chapter three was that I laid considerable groundwork for understanding how technology does in many ways constitute a mythic status which entrains many overlooked assumptions and which inheres a whole ideology, belief system and acts of piety. My focus then became the educational context. How does technology silence criticism to its pervasive role as a "cross-curricular" and "lifelong competency?" In what ways are we myopic to the exclusions that a technology-based, utilitarian education necessarily entails as part of the bargain or opportunity cost? How and to what extent are we deluding ourselves in our reductionism that ends with technology as the panacea for the quagmire of social ills educators are asked to address and resolve?

Questions Arising and Future Possibilities

One argument that has emerged quite clearly in the literature, and upon which I predicate my thesis, is the idea that technology is viewed rather narrowly in educational contexts as something utilitarian; that is, something to be used instrumentally toward some end. As such, the focus becomes very practical. Technology literacy, for example, becomes a question of knowing how to use a piece of software and media literacy becomes limited, for example, to issues of supervising and limiting exposure to inappropriate content. Often, "critical" views of technology still focus on the technical or practical. Janice Flake cites the problems of dead web links and difficulty in locating materials in more detail

than she shows toward her third "on-the-down-side" topic—censorship—which she mentions in one sentence, but assures us that, "Congress is currently examining this" (1996, p. 99).

Indeed, the whole concept of technology literacy was, from the outset, ideological and linked to computer *use* by technologists and other proponents who stood to gain (Noble, 1996). The term was itself coined by the Office of Computing Activities (OCA) at the National Science Foundation in the hope of conditioning the schools "to welcome the gadgetry into classrooms" (p. 20). Douglas Noble quotes Andrew Molnar—former director of the OCA—who comments: "We started computer literacy in '72. We coined that phrase. It's ironic. Nobody knows what computer literacy is. Nobody can define it. And the reason why we selected [it] was because nobody could define it, and...it was a broad enough term that you could get all of those programs [e.g. Apple's "Kids Can't Wait"] together under one roof" (p. 21). I would argue, however, that even if the term itself was hard to pin down, it did, by default, have the connotation of use or functionality since the absence of any critical element was even more pronounced then than it is today. If this default definition of literacy is knowing how to utilize technology, then Postman's question needs to be asked: "What purpose does this definition serve? That is, Who made it up and why?" (1995, p. 183).

The wider view of literacy that Postman guides us toward is one that can include the socio-political elements of "literacy" beyond mere functionality and instrumentality. We do not need to view computer literacy as a set of practical skills, nor do we need to pretend that the information it allows us to access can overcome cultural or political inequalities. For Logan, this would constitute the highest form of computer literacy: at the early end of the continuum would be a basic understanding of how to use a computer, while the end of the continuum involves the ability to "understand the issues concerning the deployment of computers in different environments in society" (p. 257).

Literacy education "must serve the purpose of teaching people how to demythologize

and decode their culture" (Bee, 1980: 50 as cited in Kirby and McKenna, 1989, p. 16). Kirby and McKenna argue that without analysis of the social context, literacy remains merely functional: "Literacy is more than a mechanical set of skills (Weinstein, 1984: 480 as cited in Kirby and McKenna, p. 16). The utilitarian thrust in education enables literacy workers (including teachers) to function within the *status quo* rather than allowing them to interact with and change society. It is why we focus on the marketability of computer skills, for example. I would argue, moreover, that literacy can include more than just a decoding of the socio-political context, but an appreciation for the ways in which our innermost and outermost, conscious and unconscious selves relate to technology. We can perhaps encourage students, in ways appropriate to their level of development, to explore how our beliefs, values and mentalities are coloured by technology, and ultimately ask of one's self whether or not technology is life-enhancing.

Neil Postman offers such a possibility in *The End of Education* where he describes an approach that uproots technology from science. One of his other books on the topic, *Technopoly: The Surrender of Culture to Technology* (1993), begins with a quotation from Paul Goodman's *New Reformation:* "Whether or not it draws on new scientific research, technology is a branch of moral philosophy, not of science." The quotation illustrates a repositioning of the discourse which I feel is beneficial to the cause of looking beyond the mythic horizon of technology. Postman argues that technology may have entered the schools, but not technology education (1995, p. 189). He challenges any skeptics to ask themselves whether or not our students have "any idea about how such technologies have changed the economic, social, and political life of Western culture?" (p. 189). Rather than limiting technology education to technicalities, Postman argues that we also look at how technologies "reorder our psychic habits, our social relations, our political ideas, and our moral sensibilities" (p. 191). This, he adds, does not mean that we have to vilify technology, but does imply a critical attitude.

A second theme arising from my discussions is one that is owed to Parker Palmer who points out that:

> In our rush to reform education, we have forgotten a simple truth: reform will never be achieved by renewing appropriations, restructuring schools, rewriting curricula, and revising texts if we continue to demean and dishearten the human resource called the teacher on whom so much depends. Teachers must be better compensated, freed from bureaucratic harassment, given a role in academic governance, and provided with the best possible methods and materials. But none of that will transform education if we fail to cherish—and challenge—the human heart that is the source of good teaching (1998, p. 3).

The question Palmer raises is the forgotten "who" question: "Who is the self that teaches?" He confesses that he has persisted in the *who* question because it "marks a seldom-taken trail in the quest for educational reform, a trail toward the recovery of the inner resources that good teaching always requires" (p. 7). In this way, Palmer points out the myth of reforms, including Quebec's. What we have not uncovered, he argues, is the notion that the inner life of the teachers is cardinally important. In connection with technology, reforms focus on teaching as being technical in nature. As a teacher who has practiced with many student-teachers and as a vice-principal who had to evaluate practicing teachers, I can avow that no amount of technology would make a bad teacher better, nor would it detract from a good teacher who knows not of technology. A teacher in touch with his/her inner passions, integrity and conversant with the spirit within is arguably the best reform of education there can be.

I came across a syndical document (Quebec Provincial Association of Teachers, 2000) about the government of Michael Harris[32] (premier of Ontario) whose solution-

[32] cf. Chapter 7 of Gutstein's *e.con* (1999) in which he describes the Harris government's business like approach to education where he describes the engagement of Veronica Lacey (as deputy minister of education and training) in a performance contract to cut 667 million dollars from the education budget, making her eligible for a bonus of up to $32 000 (p. 198).

orientation led to the proposal of a mandatory exam for all teachers (every three to five years) in order to ensure that teachers keep their *skills* up to date in providing the best possible instruction. The idea made me cringe because it ignores, as Palmer laments, that which is vitally important: the heart. Just as the utilitarian obsession makes us results-crazy, assigning value to only that which can be measured in education omits one simple truth: that we cannot overstate the relevance of the inner landscape of the teacher on teaching performance and even, to a significant extent, on student performance.

Perhaps another way to frame the whole technology discourse is within the realm of leadership. I noted early on how Moore's second stage in the evolution of a myth is one in which it is taken for granted and firmly entrenched and where not only is debate anathema, but awareness is lacking. If we are to exercise leadership, then we must break new terrain where it might not be pleasant to travel, but nonetheless worthwhile. Like Postman who is not arguing against computers in school, only against our "sleepwalking attitudes" towards them (1995, p. 44), I would argue that the Faustian role of ICT in education should become a leadership issue. McLuhan wrote in *The Gutenburg Galaxy: The Making of Typographic Man*, that "Every technology contrived and outered by man has the power to numb human awareness during the period of its first interiorization (McLuhan, 1962, p. 187 as cited in Logan, 1995, p. 212). Given that the Internet and powerful personal computers are a relatively recent phenomenon in the greater scheme of things and relatively new in education, perhaps we are still in McLuhan's period of first interiorization or Moore's second stage of myth where awareness needs to be heightened and the debate reframed, perhaps as Goodman suggests, "as a branch of moral philosophy."

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