World of Technology: Better or Blinding?

Latika Raisinghani[1]
University of British Columbia, Canada

Introduction

This paper is an attempt to create ethical awareness about how humanity's efforts to bring *good* through technological advancements have contributed in its own destruction and disempowerment at various fronts of life including education. By drawing attention towards the technological abuse, which is often instigated in the name of progress and increased knowledge production, I attempt to incite humanity's moral consciousness against this technological outrage of the world that has devastated so many lives and the nature in multiple cultural contexts.

Guided by Ferneding's quest to understand technology, I explore Heidegger's notion of contemplating technology which invites technology as a technoscience: an intellectual virtue that does not alienate humanity and destroy nature. Inspired by these insights, I hope to create a dialogic space that could allow complicated conversations to *understand* technology (Pinar, 2012a) — conversations that do not technicalize schooling but call for (re)investigating humanity's relationship with technology and create love and sense of belongingness amid teaching, learning and living encounters of education. I begin this paper by first sharing the incidences of technological devastations in diverse cultural contexts. Then, I discuss how the desire to control has led humanity towards a path of self-destruction and a technicalized mode of schooling. By problematizing this industrialized notion of technology, I draw attention towards some disastrous realties that may consume humanity, and conclude the paper by searching hope in George Grant's invitation to (re)think: "What technology *is*" (Pinar, 2013a)?

Technological advancements or abuse?

"*The Age of Information is an Age of Ignorance.*" (Pinar, 2005, p. 2, emphasis added)

"For the good of mankind…" (Primetime Video, 2004; 1 March 1954 - Castle Bravo, n.d.) that is what was said to the people of Bikini atoll in the Republic of Marshall Islands (RMI) when their homeland was taken away from them to test hydrogen bomb called Castle Bravo. On March 1st, 1954, Castle Bravo was detonated — within minute a mushroom cloud rose to a height of 47,000 feet (14 km) and a diameter of seven miles (11 km); it reached a height of 130,000 feet (40 km) and 62 miles (100 km) in diameter in less than ten minutes and continued to expand at more than six kilometers (4 miles) per minute (Castle Bravo, the Biggest USA Atomic Bomb Test on the Bikini Atoll, n.d.), and showered the nuclear fallout over more than 11,000 square kilometers (1 March 1954 - Castle Bravo, n.d.).

People of Rongerik (where people of Bikini were relocated) as well as nearby Rongelap, Ailingnae, and Utrik atolls of RMI were not informed about the dangerous effects of this radioactive fallout. They did not know what was falling from the sky — some thought

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it was a *communion* coming down from heaven, some rubbed the radioactive ash on their bodies, and many children played and opened their mouths to taste the divine gift of *heavenly snow* (Primetime Video, 2004; 1 March 1954 - Castle Bravo, n.d.; Raisinghani, 2005). Since then, several people have died due to cancer. Many have suffered life-long from other illnesses due to exposure to radiation. In women, it caused still births, miscarriages, and faulty pregnancies.

I watched the old black and white video along with my Physics and Chemistry students in 2004 in the library of Assumption High School, Majuro, RMI where I was then working as a Science teacher. One of the officials in the video said that testing Castle Bravo was the secret "Project 4.1" of the United States of America (U.S.), which was established to test the effects of nuclear radiation on human beings (also see Bikini Atoll, n.d.). A raging thought crossed my mind: Were the people of Bikini and neighboring atolls just guinea pigs? The people of RMI are still receiving a large compensation from the U.S. government. But can we really compensate? Is paying a price for people's life, humane? One woman interviewed in the video said, "If I knew that I would get money to buy a coffin for my son, I wouldn't have left my home." Another said, "We were taken into open fenced fields and hosed down naked in front of the men and children, like the pigs in a pig pen" (Primetime Video, 2004).

Reflecting on the devastation caused by these nuclear bomb tests, Daniel Kyle, a Grade 11 student wrote — "Boom!!!!!! Marshallese future is doomed" (Raisinghani, 2005, p. 5). The loss caused by the shadow of nuclear mushroom is not only immediate and environmental; it is permanent and agonizing, deeply affecting the socio-cultural life of past, present and future generations of RMI as is expressed by a Grade 12 student Terrence Muller who in his poem identified people of RMI as the "Victims of a Tragedy" who lost their homeland and are forced to bear the scars of nuclear contamination for generations:

> **Victims of a tragedy**
> They said it was intended
> To promote world peace
> But how it ended
> Was sad, a lesson to teach
> Men of ignorance, of greed
> For worldwide recognition
> And the people who agreed
> But with no cognition
> Of what was to happen
> To their beloved atolls
> And the women and men
> The victims of the fall
> The weapons went and exploded
> One after another.
> A story in history mended
> A burden upon their fathers
> Those who bear the scars of contamination
> Who suffered illnesses, mishaps, and exile
> In turn were bargained with compensation
> Money thought to be worthwhile
> They were treated as lab rats
> Subjects of experimentations;

> Mere beings of the aftermaths
> They lost knowledge of their homelands
> And their old ways of living
> Not knowing where they stand
> In a world so perplexing.
> - Terrence Muller (as published in Raisinghani, 2005, p. 8).

Indeed, the pain caused by repeated nuclear bombs tests in RMI is agonizing as evident in another student Benjua Kaminaga's Haiku:

> **This pain**
> Piercing flakes hurt skin
> A sorrow little nation
> This eternal pain (as published in Raisinghani, 2005, p. 5).

I am sharing this tormenting story that I learned and lived with my students in Majuro, RMI, to raise the ethical question about (mis)use of technology in the name of progress. Ferneding (2010) has shared a similar concern about the abuse of technological progress, "the image [of the atomic bomb] still haunts me" (p. 171). And this technological abuse is not uncommon. I still remember the panic and anxiety in my parents' eyes when they heard the news about leakage of a poisonous gas from the Union Carbide factories in Bhopal, India in 1984. My parents were not at peace until they were able to get in touch with my maternal uncle who was living in Bhopal with his wife and four daughters. Luckily, my uncle and his family survived. But can the Union Carbide Corporation that knowingly built a substandard pesticide plant (Ahlquist & Kailin, 2003, p. 42), return the lives of more than 10,000 people who were killed, and 200,000 who were injured?

Can Japan be made accountable for increasing air and noise pollution in Kosrae, Federated States of Micronesia (FSM)? Most of the cars used in Kosrae, FSM are second/third hand Japanese cars that are not allowed to run in Japan because they do not meet the requirements of Japanese Environmental Protection Agency and thus are exported to places like Kosrae where they are bought because of their comparatively cheap prices and no strict Government regulations to stop the use of such cars (Personal experience and observation, 2006-2012).

Who should be blamed for environmental catastrophe in Nauru — Germany, Britain, Australia, New Zealand, Japan or the people of Nauru itself? Phosphate mining for more than a century has left the country unsustainable. Eighty percent of the surface has been strip mined and has left Nauru with no arable land; no permanent pastures and no forests (Resture, 2012). No effort is being made to reclamatize the land as cost of reclamatization is too high. Secondary mining is still continued. The people of Nauru are totally dependent on imported commodities from Australia and New Zealand, and have no other economic resource left except to sell the fishing rights in Nauru's territorial water in addition to allowing phosphate mining (Economy of Nauru, n.d.). I wonder if anybody cares: How are people of Nauru surviving? What impact will this continued mining have on their future?

By looking at these examples, I reckon the comment of one of my classmates in a Doctoral Seminar who interpreted, the course instructor's comment "Humanity has the capacity to be evil" as "Humanity is evil"— an understanding, one may argue is mirroring today's reality. Indeed, without any underlying spiritual-ethical foundations, many human actions that are based on a destructive mechanistic anthropocentric paradigm, have made

human race an "enemy of the world" (Ferneding, 2010, p. 183). Increased acts of terrorism at political, social-cultural and personal fronts that are often results of humanity's unwitting, unethical acquiescence to technoscience, confirm that "Humanity is in an ongoing crisis" (Pinar, Class discussion, Doctoral Seminar, Department of Curriculum and Pedagogy, University of British Columbia, November 28th, 2012).

Quest to control

In becoming part of today's technoculture[2], in our continued quest to control nature through technological innovations, humanity's moral consciousness has become quiescent. Ferneding (2010) has affirmed the unfortunate truth that in the name of bringing change, humanity's relationship to the technoscience has become ir/rational — "not so much to experience or understand, but rather to control" (p. 171).

I reckon that behind this need to have control or to become powerful is the truth of being powerless, similar to the bullies, we may encounter in our lives. Often people who become bullies, are themselves, the victims of faulty socialization process. They become bullies to disguise and overcome their own fears, frustration and hurt (Randall, 2001). Similarly, it is evident that the need to have control and gain prominence in the world market is driving many countries to invest more in technology. In the name of development, we are failing to recognize that a product of this technical advancement namely, the thoughtless industrialization, is a leading cause of global environmental problems. By engaging blindly in technological advancements, humanity has designed a tool for self-destruction. It seems that we are like the woodcutter of an old Indian story who was cutting the same branch on which he was sitting. As Rachel Carson the author of "The Silent Spring" had shared in her chapter "Needless Havoc":

> As MAN[sic] PROCEEDS toward his[sic] announced goal of the conquest of nature, he[sic] has written a depressing record of destruction, directed not only against the earth he[sic] inhabits but against the life that shares it with him[sic] (1962, p. 85).

Indeed, we should not forget that we embraced technology to bring changes for the betterment of humanity. How long are we going to continue exploiting nature in the name of modernity? How far will we go with this instrumental rationalism that worships the ideology of progress as truth (Ferneding, 2010)? Is there any hope when according to George Grant, technology has become "a philosophy of reason as domination over nature, a politics of imperial, bureaucratic administration, a public discourse of efficiency, and a sociology of adjustment and equilibrium" (as cited in Pinar, 2012b, p. 4)?

And more disquieting truth is that, "it is not only nature that is wasted in this technology of thinking, it is human nature itself" (Pinar, 2012b, p. 12). One apparent example of such is drastic change in the values and socio-cultural beliefs of today's younger generations who have started forgetting old customs of respecting people and their human needs first. They have learned to prioritize their own wants/desires because that is what they are mostly fed through the mass media of televisual world. It was a shocking experience for me to see that in most of the Kosraean homes, there was a television and cable but not enough food and clothes for the family. Children were left roaming naked and hungry on the beach while other family members were "busy" in the fantasies of the televisual world brought to them through modern technology.

Is not it true that most of us assume that technological devices are mere tools to achieve greater efficiency and consider them fully under our control? But as Heidegger pointed out, this is only half of the story. Technological tools and systems actually act as shaping forces (Ferneding, 2010). Fear, expressed by Grant (2011a, b; Pinar, 2012 b, 2015), has come true as technology has started to dominate our consciousness and constrain our freedom of thoughts and actions. Indeed, technological innovations are related to production of knowledge, and thus power because they operationalize human intentions (Ferneding, 2010).

Techinicalized schooling

Operationalization of human intentions by technology is very evident in today's educational world. The integration of technology in today's classrooms is often stressed by claiming that many features of new information and communications technologies (ICT) are consistent with the principles of the science of learning and that they hold promise for improving education and students' learning (Bransford et al., 1999; Roschelle et al., 2000; Wang, 2009). A study conducted by Kozma (2003) examined the findings from 174 case studies of so called *innovative* pedagogical practices focused on using technology from 28 participating countries. This study reported interactivity of technologies as a key feature that enables students to receive feedback on their performance, test and reflect on their ideas, and revise their understanding. The findings of this study claim that ICT can bring exciting curricula based on real-world problems into the classroom as it provides tools to scaffold learning. The study further argues that ICT expands opportunities for learning by enabling teachers and students to build local and global communities.

Many researchers argue that computer-generated simulations (CGS) are safe, cost effective alternatives to real laboratory experiments as they promote active learning and self-regulation through immediate feedback, and break the routine instructions by minimizing guidance by the teacher and giving students ownership of their leaning (Campbell, Wang, Hsu, Duffy, & Wolf, 2010; Finkelstein, et al., 2005; Wieman, Adams, Loeblein, & Perkins, 2010). Friesen (n.d.) sees "educational brilliance" in CGS as it is designed specifically for educational purposes, reduces distractions by muting the unwanted manifold sense experiences, and is entirely subjected to desire and manipulation, disposability and discontinuity — "In a virtual world any object can be refreshed, rebooted and simply shut down at will" (p. 4). Friesen argues that the use of CGS relieves students from the agony and discomfort caused by the undesired smell of formaldehyde, sight of blood, and the wet touch of dead animal skin while performing real ociaociaections on a dead frog in a lab.

I would agree with these researchers that in some cases, such as in Chemistry or Physics labs, where students are expected to use expensive and dangerous chemicals and/or equipments, CGS might be safer and cost-effective alternatives. In Friesen's case, use of CGS may relieve one from the ethical dilemma of sacrificing animals and ensure environmental safety as we may not need to worry about safely disposing real dissected frogs. But how engaging, meaningful and rewarding is this "momentary and virtual satiation" (Pinar, 2013a, p. 1), learning only through clicking a mouse and staring at a screen — only students could tell. Can we just rely on technology to impart learning? Was it really due to technology that the students learned better virtually than in the real world? Perhaps not, as many of these studies indicate that other classroom practices are more likely to be associated with certain teacher and student outcomes (Kozma, 2003). The positive impact of technology does not

come automatically; much depends on school contexts and how teachers use ICT in their classrooms (Bransford, et al., 1999; Ertmer, 2005, Perrotta, 2013).

The critical question to inquire persists: Is technology really enhancing students' learning? A national study in the U.S. (Wenglinski, 1998) found a negative relationship between the frequencies of home and school computer use, academic achievement and the social environment of the school. Similarly, the use of ICT in Canadian schools had little impact on students' scientific literacy (Luu & Freeman, 2011). More alarming are the findings about full-time virtual schools in the U.S. which indicate that the students of nation's largest virtual school company K12 Inc., are falling behind in reading and math scores and they are also less likely to remain at their schools for the full year (Miron & Urschel, 2012).

Pinar (2013b) further elaborates the case by sharing that in Agora Cyber Charter School (managed by K12 Inc.), sixty percent of the students are found to fall below grade level in mathematics and almost fifty percent are lagging in reading. Many students withdraw within months of enrollment and out of those remaining students, one-third fail to graduate on time (National Education Policy Center, 2012). One underlying reason for it is illustrated in a report by Miron and Urschel (2012), which states that K12 Inc. has more than three times the number of students per teacher compared with overall public-school student-teacher ratios and it devotes considerably fewer resources to instructional salaries and benefits for employees.

Glass and Welner (2011) raised a concern about the ongoing expansion of full-time virtual schools in the U.S. with more than 200,000 students enrolled in full-time virtual school programs nationwide without any high-quality research supporting them as a suitable replacement for traditional schools. This report also questioned the use of public revenue to run the cyber charter schools in light of the fact that the full information about the actual cost of these programs is not shared with the public.

According to Pinar (2013b), the replacement of schools with online instruction, where students from grades K-12 are encouraged to take some or all their classes away from their actual school, marks the end of public education in the U.S. The crucial issue involved in operating these virtual schools is that many of them are run by professional technological companies who not only govern administrative tasks for their businesses, "the online schools," but they also take important educational decisions such as hiring teachers, providing curriculum, and monitoring students' performance, reflecting the fact that public education in the U.S. is no longer a professional commitment but only an economy driven system established to support corporate profitability: "Teaching-to-the-test positions technology - not the student, not the professional educator - as central to educational experience" (Pinar, 2013b, p. 5).

And this seems to be the case not only in the U.S. but in many other countries also where schools are asked by the government agencies to incorporate educational technology as part of an instructional shift within the context of school improvement (Fox & Henri, 2005; Pelgrum, 2001). Pelgrum (2001) who investigated obstacles in integrating technology in education in 26 countries claims that recognition of ICT as an important catalyst and tool for inducing educational reforms has changed students as "productive knowledge workers" who are "trained" to perform skilled tasks (p. 163).

Lingering questions

Is rendering students to be "trained" through mass incorporation of technology in everyday schooling, really a progress? Can mere technology-mediated learning help students

become active learners who can self-advance their knowledge and understanding? Studies show that many teachers use ICT mainly to support existing teacher- centered approaches and see it only as a resource to teach the standard curriculum and increase students' performance on standardized tests (Kozma, 2003; Fox & Henri, 2005). In the name of reforming schools, technicalization of schools is blindly forcing integration of technological tools, i.e., computers, ipads, electronic boards, etc. (Pinar, 2013b), with a stubborn mindset to teach only for the skills required to pass standardized tests (Doll, 2008, Pinar, 2005, 2012a), and disseminating education merely as "imitation" (mimesis), based on "Platonist" views (Doll, 2005 as cited in Trueit, 2005). I wonder if any one cares about the quality of education, and the key curriculum question: "What knowledge is most worth" (Pinar, 2011, p. 14; Schubert, 1997, p. 1)?

        Where do we want to go? What are we aiming for? How long are we going to use schools as mere factories of "Social engineering" (Pinar, 2005)? I wonder if all these superficial efforts to reform schools are merely filling up the pockets of certain business organizations. Is not it an unfortunate truth that "in today's capitalist structure the pursuit of dynamic technology is now a worldwide religion" (Grant, 2011b, p. 114). One thing is clear, and definitely discouraging — students' education has been put at stake. Pinar (2013b) is right — "In 'school reform' children are not pupils but numbers: profits, commodities to be bought and sold" (p. 19). Can we not encourage and allow schools to communicate knowledge that could let us discover, "How do we know what we know?" and "How well do we know what we know" (Brandwein, 1962, p. 142)?

Disastrous realities

        Indeed, such modes of technicalized, profit-based schooling are unfortunate and disappointing. In fact, such schooling is an outrageous, pecuniary form of pedophilia in which children have merely become a means to earn profits. In this political-economical capitalization not only children's education is compromised but their psychological well-being is also neglected (Pinar, 2013b). Digital multitasking and extensive time spent in front of screens was found to be correlated with poor emotional and social health of 3,461 preteen girls who displayed low social confidence, sleeplessness, and were reported to be feeling abnormal, and having more friends whom their parents considered as poor influences (Silverman, 2012). Furthermore, research shows that students who multitask, actually compromise the speed as well as accuracy and quality of their performance on various tasks. For example, the students who send emails while tackling their homework, end up spending 50 percent longer time than the if they had done each of these tasks separately (McNeil, 2009). These studies highlight the importance of focused attention on single tasks for learning as well as the need for direct face-to-face communications for strong social and emotional health development of children.

        Importance of face-to-face interactions for healthy development is also emphasized by another study that reports on the impact of video watching on vocabulary development in eight to ten-month-old infants of over 1000 parents in Washington and Minnesota (Sikorski, n.d.). The study illustrates that every hour of video watching resulted in acquisition of six to eight fewer common baby words by these infants as compared to those who did not watch them.

        These findings are just samples of the problems, which most children of the 21st century are encountering due to high and irrational use of technological devices. These children are reported to engage in an average of seven to eight hours per day of technology

use which could lead them to increased childhood obesity, aggression, irresponsible sexual behavior, anxiety, depression and deleterious effects on learning and academic performance including lack of concentration (National Aboriginal Health Organization, 2009; Rowan, 2008). What does the future hold for these children? We all are aware of negative consequences of over/mis use of technology, but are we learning any lessons? Grant (2011b) stated, "Modern men are committed to unlimited technological progress" (p. 100). So, when will we stop?

Lost identities

Enveloped in our "technological cocoon"[3] (Ihde, 1979) do we know that this technological abstraction is leading us away from nature, and our humaneness is being engulfed? In the state of postmodernistic reality social and technical worlds have become merged and we live within and of technological systems (Ferneding, 2010). What Pinar (2012b) rightfully stated about past, "Technology had become not just one optional mode *d" être*, but the only way of life on earth" (p. 4), has become more conspicuous in today's world. Our dependence on technology is evident in extensive use of electronic gadgets in our everyday life. It is like we cannot eat, sleep or move without them — "In each lived moment of our waking and sleeping, we are technological civilization" (Grant, 2011a, p. 11).

For many of us "technosphere" has become the determining feature of identity — we are lost in "spaces" created through the televisual and cyber world. One example of such an illusionary technological fantasy is the 3-D virtual world of Second Life which is being promoted as "a wonderland in which everyone can be anything or anyone they want to be. It is a place to make dreams come true" (Han, 2011, p. 41).

In the virtual world we can relive our life in a new way by personification of our identity as "avatars" (Han, 2011, p. 41). According to Ihde (1979) our relationship to technology in such situations is perceived as one that is grounded in our embodiment. The "world" created by instrumentation becomes "*real*" and enables reification. This new instrumental realism becomes convincing because "what was invisible becomes present" (p. 47). In fact, it makes our experiences with direct senses in flesh, secondary to those generated by instrumentation (Ferneding, 2010).

One can be fascinated by getting such opportunities of living a life of perfection in virtual world. But while living in this self-created, personified "virtual life," how does one contemplate and tackle with the "actual-world life" that one is living in flesh and bone through birth as a human? Is not living these two lives similar to multiple personalities found in the psychological disorder, dissociative identity disorder or multiple personality disorder, which is characterized by at least two distinct and relatively enduring identities or dissociated personalities that alternately control a person's behavior (Dissociative Identity Disorder, n.d.)? And if we live in two worlds, which life is real in *real* sense? Is not this effort to live virtually, another human attempt to conquer life? In Ferneding's (2010) words: A mask to cover our profound fear — a design of our imagination, created for "denial of death" (Becker, 1973).

We crave to hide our guilt of beingness, of existence, and attempt to find meaning to hide the meaninglessness of our existence in this mortal life. In quest to do so our focus has shifted from finding God in heaven to become God ourselves as we try to recreate and relive our lives in the virtual world. As Pinar (2013a) has stated, our constant search in the online world has become our salvation — by being lost in the online world, staring at the screens, transfixed, our subjectivity has become a prosthetic extension of our virtual being, and we are

lost in an unending search of finding something that we are not even sure if it exists. I wonder if this "virtual life" makes one's life easier and happier in the "actual-life world". How does it affect one's relationships with Self and Others?

By modifying our mode of communication, electronic technologies shape our social reality and cultural relationships. Humanity designed technology in an effort to capture and conquer time, but in doing so it has actually started attempting to transcend time (Ferneding, 2010). As participants of "networked society" connected within the cyberspace created through ICT, virtuality, spontaneity and immediacy of our communications have led us into a "timeless time," where, in an effort to connect globally by becoming immersed in "technoculture," we are actually becoming locally disconnected — uprooting ourselves through alienation and psychological distancing.

Our traditional systems of socialization (religion, values, and political ideology) are diluted as we attempt to create a secular society that embraces a new "cultural system" of "real virtuality" where we live like Ihde's (1979) "technological cocoon" for whom:

> reality itself (people's material/symbolic existence) is entirely captured, fully immersed in a virtual image setting, in the world of make believe, in which appearances are not just on the screen through which experience is communicated but they become the experience. (Castells, 2000 as cited in Ferneding, 2010, p. 177)

Grant considers this elopement of our social reality by technically created virtual reality as "monistic vulgarity" (Pinar, 2013a, p. 2). Immersed in the self-centered universal world of cyberspace created through the Internet, what morality do we expect from ourselves? In having the freedom of dissolving our personal identities, how sure are we that everybody would follow the moral rules when, according to Hannah Arendt, the conditioned environment of our own (un)making is dominated by bureaucratic and technological forces that follow "Rule by Nobody" (Ferneding, 2010, p. 181)?

How will we ensure that this neoliberal, radical, individualistic "negative freedom" or "freedom from" would associate with universal concern of what is good or right (Ferneding, 2010)? In escaping from ourselves by creating reality that is unreal but still becomes our reality, how would we transcend? Humanity created technology in quest for salvation but in turn has become its servant (Ferneding, 2010). According to MacDonald (1971/1995), "Humanity is sleepwalking on a tightrope":

> What will awaken men from the idiocy of their technological compulsions? Will we be saved by superior intelligence from the unknown universe? Will there be a second coming of Christ? Perhaps, but then, perhaps not. Will California quake and crumble in the Pacific as a warning to men? Or shall we simply risk the possibility of beginning again after we have purged ourselves in the fire of nuclear redemption? (as cited in Ferneding, 2010, p. 179)

If we are not wise enough to awaken now, we must prepare ourselves to enter and live into the "posthuman" condition created by cybernetics that entails an ironic turn — "a humanization of the machine and the mechanization of the human" (Ferneding, 2010, p. 175). In fact, I am afraid that we have already begun this process as evident by the new scientific technologies of reproductive cloning (Reproductive Cloning, 2004) and ectogenesis (Aristarkhova, 2005).

Reproductive cloning could be a new hope for gay and lesbian couples who want to have children and do not want to adopt a child, but efforts to design human clones through somatic cell nuclear transfer might eliminate the process of biological birth and lead to "self-creation" through reproductive cloning. And there are ethical issues involved — thousands of donated eggs and cloned embryos are sacrificed in an attempt to have a single successful cloning (Aristarkhova, 2005). Can we afford such mass killings? Moreover, how sure are we that eugenic advantage of reproductive cloning will not lead to perpetuating desired genes? And this could result in "bioterrorism" where anybody could claim that their genes are superior to others. Would not this result in a new kind of racism/cultural/ethnic war to design humans of their own kind?

Through ectogenesis, we are replacing the uterus, the natural womb, with an artificial incubator to develop a fetus totally outside a woman's body. Aristarkhova (2005) has described that ecogenesis has been justified historically through an underlying assumption that uterus is just a clever incubator whose function can be ultimately substituted. Supporters of ectogenesis claim that by using this technique, we are actually relieving women from their reproductive function, and allowing them opportunities to spend more time and energy for their professional growth (Aristarkhova, 2005). They prefer ectogenesis over natural gestation because it reduces the chances of birth defects by allowing control and manipulation of the processes of conception; gestation and birth at any stage through various means. Ectogenesis also claims to relieve parents from tensions of having a surrogate mother and also from the need to think about paternal pregnancy (Aristarkhova, 2005).

In Ectogenesis, a fetus develops "outside" the maternal body by enabling gestation "inside" a machine that strives to simulate the conditions of the womb; a machine that acts as if it was a mother (Aristarkhova, 2005). In this technological dream of "machine as mother," we have actually reduced the "*mother as a machine*". Is process of giving birth to a new individual totally mechanical? We have completely ignored mother's nurturing role — where the need for emotional and affectionate bond between the mother and child is gone? If we will continue designing humans and manufacturing babies — what will be the nature of human families and society? Wrapped up in this blind desire to progress, ignoring morality in the name of universal race to conquer nature where are we going?

Searching hope

By ignoring the critical issues of moral and ethical reasoning, and merely engineering children through technicalized, standardized schooling are we really giving education? How would we respond to the request of this child?

> Dear Teacher:
> I am the child of a concentration camp. My eyes saw what no person should witness:
>> Gas chambers built by learned engineers.
>> Children poisoned by educated physicians.
>> Infants killed by trained nurses.
> Women and babies shot and burned by high school and college graduates. So, I am suspicious of education. My request is: Help your students become human. Your efforts must never produce learned monsters, skilled psychopaths, educated Eichmanns. Reading, writing and arithmetic [and technology] are important only if they were to make our children more humane.[4] (as cited in Delpit, 2006, p. xix, Parentheses added)

Is there any hope? We cannot turn the clock back. As Brooks (2010) has mentioned — we now stand in an era, where technology is inextricably entwined both as general and educational method, and as a discourse in global economic order. So, what should we do?

Following Grant, we must (re)think: "What technology is?" (Pinar, 2012b, 2015). Heidegger invites us to understand technology not merely as technē that is guided purely by instrumental rationality, which contemplates nature as a calculable material extension through a distanced, modernistic, objectifying, Cartesian construction, but as an intellectual capacity or virtue — as *technē* in its Greek sense that has to do with making or creating something new in accordance with a reflexive rational capacity of identifying truth and falsity, as a way of revealing nature and life.

Ferneding (2010) awaits for an awakening and active resistance that she expects will evolve naturally as humanity experiences suffering in the process of disappearing itself quietly in self-generated emptying (in technology). She invites curriculum scholars to engage in post reconceptualization within the context of technology-generated "transpochal state"[5], and create a "next moment" in curriculum studies. Brooks (2010) hopes to break the wall of instrumental rationality, and relieve the tension of humanness, and technology through *phronēsis* — the ethical intellectual virtue of mind.

Indeed, only curriculum conceived as practical wisdom, moral knowledge, art (*technē*), scientific intelligence and prudence of *phronēsis* will enable us to continue our "complicated conversation"[6] (Pinar, 2011, 2012a) and allow "intersubjective truth"[7] (Kemmis, 2005) to rise in communication so that we can continue our "allegory"[8] (Pinar, 2011) to reconstruct our present by reactivating our past and visiting our future with "*love*" (Pinar, 2015). The *love* that would allow us to transcend our technologically bound destiny defined in terms of instrumental calculation and obsession and stop us from blindly embracing technological vulgarity that kills humanity in the name of progress. The *love* that would allow us to reconceptualize technology as a process that is "poetic"[9] (poiēsis) (Davis, 2010) running of the course of our life as *currere*[10] (Pinar, 2012a, 2015) — to acknowledge and *understand* the "Other" in every realm of life with consent that Grant conceives as "authentic otherness" (Pinar, 2015, p. 122).

Acknowledgement

Notes

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[1] Email: latikarai@hotmail.com

[2] Category of technological-human relation where mechanic condition as "technosphere" is ubiquitous and humans exist inside the machine, which is manifested as a "technological cocoon" (Ihde, 1979).

[3] Our "will to control" nature through technological inventions, exists as salve for human psyche, illustrating the mysterious symbolic power of possibility and inevitability, of hope and fear, wrapped up in one upright symbol of human power and powerlessness it collapses for meaning in technoculture - culture being one manifestation, technics another (Ferneding, 2010).

[4] Haim Ginott (1972) included this letter in his book Teacher and child: A book for parents and teachers. This letter was given by a principal to all of his teachers at the beginning of a new school year (as cited in Delpit, 2006, p. xix).

[5] Transpochal state is being characterized by humanity's sense that "something is changing, something different is emerging. We can feel it; we are trying to articulate it" (Kochhar-Lindgren, 2005, as cited in Ferneding, 2010, p. 176).

[6] Curriculum conceived as complicated conversation invites students to encounter themselves and the world they inhabit (and that inhabits them) through academic study, through academic knowledge, popular culture, all threaded through their own lived experiences (Pinar, 2011, p. 10-11).

[7] Intersubjective truth can be found only through communicative action – by being locked or engaged together in the search for intersubjective agreement, mutual understanding and consensus about what to do (Kemmis, 2005, p. 8).

[8] Understanding curriculum allegorically self-consciously incorporates sharp sense of past in present. Enabling discernment of the present and foreshadowings of the future in to a complicated conversation that is threaded through one's subjectivity, it allows us to build passages from the particularity of our situations to the alterity of others (Pinar, 2011, p. 4-7).

[9] Etymological root of the word poetic is related to making meaning through interactions with others, with the environment/cosmos, and reflexively to develop a sense of being-in-relation (as mentioned in Trueit, 2005, p. 2).

[10] *Currere* is a method of self-reflective autobiographical intellectual inquiry. As a self-situated study of "ongoing self-formation through academic study…as a form of cultural criticism, *currere* fosters educational journey to allow individuals to be in touch with their own experiences" by making them critically aware of their own identity as it is "dreamt into existence" by their own "internalized histories [and] other's expectations and fantasies" (Pinar, 1992, p. 233, 2012 a).

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