

## ***Where the Mind goes so goes the Soul***

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*It is our belief, that of the many possible forms of knowledge available to the human mind, the western world has selected a form of knowledge motivated and informed by the value which we, as a culture, have placed on power and control. The particular form of knowledge we have institutionalised, that is to say, is conceptually conditioned by our preoccupation to dominate and direct the living destiny of every living and non-living thing on this planet. Our insatiable appetite for power drives us to a form of knowledge which covertly stipulates that the only knowledge worth having is that which allows us to re-order the world of nature in a way that suits our own ends and presumed interests. It is this knowledge which we have come to refer to as scientific knowledge.*

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### ***Challenging the Contemporary Paradigm of Educational Knowledge***

If the knowledge we transmit in our schools is structured and shaped by our obsession with power, both its form and application will reflect that obsession. If what we claim to know is covertly defined by the capacity of what is known to provide us a power advantage over the things of nature, the orthodox educational view that knowledge is neither good nor bad in itself can be exposed for the illusion it is. Far from being neutral, every piece of information which is accepted as knowledge is designed covertly to provide some control advantage over the world in which we live. In the light of the power presumption as a primary motivating factor in determining what we accept as knowledge, it is the contention of this piece that there is already a built-in or conceptually endogenous bias within education in favour of an epistemology of control and subjugation. This being so, the idea that what makes knowledge 'good' or 'bad' depends simply on how one uses it, betrays a conceptual distortion of a far subtler truth. We have as educators failed to recognise the extent to which the human drive for power

and dominance has covertly delimited the forms of knowledge incorporated in the school curriculum.

We have failed also to recognise that we have inadvertently let our schools become the state-sanctioned vehicles for the cultural transportation of an ideology of power and control. Cognisant of the predilection of scientific knowledge for power and control, Habermas is careful to locate the knowledge which motivates technology in a dialectical interaction with the arts and social sciences. His assumption is that the knowledge which motivates the arts/social theory enterprises is less concerned with power and subjugation than with human interests.

Habermas claims that the human species arranges its experience in relation to cognitive interests that establish our knowledge a priori, although they arose contingently in the evolution of humankind. 'These knowledge guiding interests "have a transcendental function but arise from actual structures of human life", thus Habermas dubs them as "quasi-transcendental"' (Habermas 1971:194). The 'basis of interests' ensues, Habermas submits, from a perception of humans as both tool-producing and language-utilising beings. First, humans must create what is deemed 'necessary' for their material existence in stark confrontation with nature through the exploitation and domination of objects. Second, the human species must also communicate via the application of intersubjectively understood symbols within society. Humans therefore have an interest in: (1) the generation of knowledge which provides the means to control objects; and, (2) to communicate. From this it follows, Habermas argues, that a third basic human interest exists, in particular, an interest in the contemplative appropriation of human activity without which the interest bound disposition of knowledge could not be grasped. This interest is grounded in the human potential to behave rationally, to be self-reflective and self-determining. Humankind therefore has a third interest in the generation of knowledge which expands autonomy and responsibility. For Habermas, it is an emancipatory interest.

Habermas's assertion of the way in which reality is structured and acted upon is encapsulated in his rendering of cognitive interests. The human species is directed primarily by three cognitive interests: the technical, the practical, and the emancipatory, connected conceptually to the way in which a society defines labour, interaction and power. They are the elements required for the generation of three domains: the empirical-analytical, the hermeneutic and the critical. The purpose of these domains, is to systematise and formalise the processes necessary for basic human activities essential for the continuation of the human species.

In principle Habermas's distinction between the domain of science on the one hand, and the arts/social theory domain on the other seems to be

well placed. The problem is that in practice the demarcation he proposes is an ideal that is less than well supported in practice. Within our educational institutions we tend to draw a sharp distinction between science and non-science on the ground that science proceeds on the basis of evidential ordering and induction, whereas non-science does not. It is as if we believed that science has a monopoly on rationality, being the only enterprise that makes use of evidence in support of its conclusions. There are at least two replies to this. First, the domains we tend to regard as unscientific (for example, morality, religion, etc.) actually make far more use of evidential procedures than they have hitherto been given credit for. We spend so little time considering these other areas that we are lamentably ignorant of the methodologies that govern them. Only by cavalierly dismissing these other inquiries are we able to maintain our prejudices about their subjective status. Indeed, had it been fashionable to invest research energies and equivalent findings for the development of these subject areas over the past half-century, the epistemic disparity between science and the supposedly non-scientific domains would doubtless have been minimised. The supremacy of science and the concept of knowledge as power which it enshrines in contemporary society cannot be regarded correctly as the result of a methodological enterprise signifying the best and only legitimate tool by which we come to understand the world. The dominance of science in the western world and the attitudes it fosters have become strangely self-serving. Scientific enlightenment in the form of technologies of power is a self fulfilling prophecy of the rape of nature. We have crystallised science into a metaphysics and our vision has become myopic.

The pervasiveness of the scientific idiom and the sphere of its influence are undeniable. We claim that our research is scientific because we believe that its being so makes it more reliable and important than if it were not. Science has become a banner word, an accolade ascribed to allegedly successful aspirants of knowledge. Most of us are either scientists, or if we are not, we are treated in ways which make us sometimes wish we were. Amongst those in arts faculties, there are few who have not been made to feel self-conscious of the nature of their respective intellectual expertises, not infrequently having to defend their professional competence against the persistent charge of irrelevance or unscientific. The faculty of science is no longer just one faculty among many. In this age of the self-avowed scientist, science has become the measure of all faculties that we believe to be worth having. To be engaged in scientific inquiry oneself or be associated closely with those who are, has become a status symbol. In a milieu of convoluted scientific imperialism it is no surprise that science has partisans everywhere. One need only canvass the names of (sundry) university departments to appreciate the extent to which the cultural domination of

science has shaped our perception of ourselves and of what makes us valuable. The aegis of the natural or the physical sciences has been palpably extended to include engineering science, computer science, medical science, and even mortuary science. The proliferation of partisan terminology is exemplified by recent discipline designations of title which witness the fact that university departments previously simply called the department of politics or the department of sociology are now called the department of political science and the department of social science, respectively. The attempt to legitimate the work of the University by making its areas of study more scientific is further illustrated by other new designations such as health science, behavioural science, horticultural science, food science and environmental science.

Just as the reductio-mechanist epistemic orientation characterises nature in such a way that its quantitative-objective dimensions become the subject matter of science, so it is that education is defined in such a way that a deep division arises between the quantitative-objective and the qualitative domain within the pedagogic context of science then projected as the paradigm for what we do in the context of the school curriculum. Simply put, the quantitative issues fall within the ages of science, while the qualitative issues become those of the arts. From the vantage of pedagogic epistemology, it is clear that implicit in the very structure of the curriculum that is a presumption that students working in the arts area are 'in fact' working with ideas which are subjective and thus not representative of 'real' or genuine knowledge.

Having institutionalised knowledge as a process of power, we have let education slip almost imperceptibly into a veritable industry for the development of technologies of increasing levels of power and progressive subjugation of the so called 'forces of nature'.

Just as science, technology and industry are subordinated to the reductio-mechanist knowledge as power paradigm and its anti-ecological value orientation, so too is education in its more general organisation of the curriculum. Western education, that is to say, continues to function as a propagator and maintainer of industrial consumer values, underpinned by the preoccupation with power. Since the industrial revolution, our schools have functioned to prepare students for their role in the mindless reductionist expropriation of the earth's resources by transforming themselves into scaled down copies of specialised, industrial work places. As Toffler wrote:

The whole idea of assembling masses of students (raw materials) to be processed by teachers (workers) in a centrally located school (factory) was a stroke of industrial genius. The whole administrative hierarchy of education, as it grew up (from the beginning of the mechanical age) followed the model of

industrial bureaucracy. The very organisation of knowledge into permanent disciplines was grounded on industrial assumptions. Children marched from place to place and sat in assigned stations. Bells rang to announce changes of time ... The inner life of the school thus became an anticipatory mirror, a perfect introduction to industrial society ... Young people passing through this educational machine merged into adult society whose structure of jobs, roles and institutions resembled that of the schools itself (Toffler, 1971:362).

The temptation of educational institutions to replicate by way of their own organisational structures the industrial contexts for which they prepare students has been overwhelming. Appreciation of this point makes it easier to discern the conceptual basis for Noam Chomsky's repudiation of what he calls the 'educational machine' in its service of the capitalist view of human nature. Chomsky (1975:206-207), opines that 'labour is a commodity to be sold on the market for maximal return, that it has no intrinsic value in itself; its only value and immediate purpose is to afford the possibility to consume'. In today's 'throw away' society consumerism is no longer a means to an end, but an end in itself. Along with the image of consumption as a form of social power comes competition as a measure of social interaction. People are continually aiming for the better life—'to keep up with', or to become better than, 'the Jones'. This in itself has resulted in massive social inequalities, that is, the relentless vicissitudes of the 'haves' and the 'have nots'. By hypostatizing the presumption of knowledge as power, education serves inadvertently to instil not only competitive consumer values but the associated 'throw away' ethic which conjures the mistaken belief that nature is both an infinite reservoir for commercial resources and a boundless sink for the disposal for the by-products of industry. The resultant philosophy is fundamentally anti-ecological and has fostered a false sense of security. Since few people actually produce anything themselves, their work becomes increasingly less creative and more tedious. It serves primarily as a means for providing people the opportunity to exercise freedom in the guise of unconsumption in a world of synthesised commodities from which they are systematically alienated.

Consistent with the exercise of power as a form of mindless consumerism, school children are constantly reminded of the importance of the linear process of specialisation ('what will you be when you grow up Amy?'). This being so, enormous pressure is placed upon them to choose their occupations at even earlier ages. The emphasis on acting the 'part' derives from a non-literal metaphor characteristic of 'social atomisation'. One should let one's work define one's identity. The problem is that work which is conditioned by and designed for mindless consumerism is itself for the most part both mindless and meaningless. This being so, people find themselves living mindless and meaningless lives, full of the things that are supposed to bring value but do not.

Having organised our educational institutions in such a way that the development of such power-based technology stands as the ineluctable consequence of our unbridled commitment to an epistemology of power, western culture has lured generations of schoolchildren into the false belief that scientific knowledge and the technologies deriving from it are the ultimate tools of social and personal salvation. The more we trust in the advocates of scientific knowledge, the more resources, both human and otherwise we commit, to the development of ever more powerful and controlling forms of technology. What we failed to see is that our progressive technological intrusions of control over nature serve not only to manipulate and transform the things of nature but to disrupt the established harmony of the natural order, including its capacity to reproduce itself and the contexts of social organisation within which we have a genuine chance of living purposefully and well

The goal of technological control to secure ever increasing levels of human advantage traditionally depends upon recasting the face and the things of the earth in a form which makes their behaviour predictable in ways designed to suit our needs and seemingly unlimited desires. The process by way of which technology achieves this measure of control depends upon a principle which we shall call '*transformative subjugation*'. The technological process of control through transformative subjugation involves taking the vital things of nature and converting them into utilitarian commodities to be bought and sold. In this regard, technology thus gives us power over nature by systematically synthesising and reconstructing it in forms which convey the impression that we can claim ownership of nature through our reproductions of it. Technology is the tool we have created to recreate nature.

Our technological interventions are designed predominantly to gain us control over nature by taking the things which we find in the natural world and transforming them into things which are more predictable than the things which are found there. Technology is by its very nature the process by way of which we reorder God's creation, or the world of nature, if you prefer, through our technological recreations. What we do by way of our technological recreations is to recast the face of the earth definitely not in God's image (however that may be construed theologically) and certainly not in our own image (as perverse as that might be), but rather in the image of our technology. We basically recreate the world as a machine, populated by machines or things made by them. We have committed ourselves to a form of technology, sustained by a form of knowledge, whose remit it is to turn the natural environment into an ever artificial and synthesised one, by virtue of which we gain a measure of control over it. This being so, we thus use our technology literally to surround ourselves with our technology. We

thus literally surround ourselves with our technology. We embrace the things we manufacture, along with the machines we have made to manufacture those things, as if they were almost sacred. All too often, we also unwittingly embrace, or at least tolerate, the toxic by-products of the industries responsible for producing the artefacts which adorn the artificial environments we synthesise for ourselves.

One component of the covert agenda for the technologisation of nature is that technology will alter the world in a way which is progressively shaped to satisfy our every whim. This being so, our contact with nature has been defined largely in respect of our efforts to dominate and control it, by reconstructing it in ways which make it conform to our belief of what it should be like. As a culture, we have attempted to gain total mastery and control over nature so as to achieve security, however the sense of security which we obtain is in fact illusory. This is one important sense in which we have, as a culture, sought total control and mastery over the environment.

If night falls, we use the technology of power to turn night into day. If our homes or workplaces are too hot, we use the technology of power to convert warm air into cool air. When our food crops do not grow fast enough or abundantly as we would like, we coax them to obey our will through chemically fertilising the soils or genetically engineering the plants themselves. If our agricultural produce does not travel well, we engineer it to make it travel better, and if our supermarket goods do not have a long enough shelf-life to make marketing them worthwhile, we either irradiate them, dose them with preservatives which inhibit their demise or take from them their most living parts, (as when the food industry takes the germ from the kernel of wheat) to ensure that our foods are converted into products so inert that they are almost invulnerable to decay.

Whenever nature presents us with a problem, and where a conflict of interest occurs between us and the natural environment, the outcome of these conflicts have become predictable. Our solution relies upon the application of technology to control nature by transforming it. However, the more we attempt to control nature, the more synthesised our environments become and the more detached we become from nature. The more we seek to control nature, the more transformed and artificial it becomes and the more detached and alienated we ourselves become from nature. This has culminated in one of the most crucial and neglected aspects of the global environmental dilemma confronting us, in particular, its adverse and peculiar impact on the health of the community. To see this is so, one need only reflect on the numerous ways in which we have synthesised our personal environments. The structure of the workplace is a case in point.

Most large office buildings are still designed so that they imperialise and dominate the environment rather than harmonise with it. Standing as

fortresses against nature, their internal environments benefit little from the resources which nature is capable of providing. By virtue of their very architectural structures, these buildings need to be artificially lit, artificially heated in winter, and artificially cooled in summer. The floors of our workplaces are almost invariably covered with synthesised materials, including carpets of synthetic fibres, linoleum or tiles. The tables at which we work and chairs on which we sit are usually made of metal and plastic. Drapes and other furnishings are often made of synthetic materials, as are the paints with which we colour our walls. In addition to the electrical wiring which encircles us, we are exposed to fumes and levels of electromagnetic radiation different in kind from, and sometimes many millions of times greater than, the 'normal' background levels found in nature. Photocopiers, fax machines and computers, and even microwave ovens in staff kitchens, combine to contribute to the unwitting transformation of the natural environment into an artificial one. That living plants are unable to grow successfully in our work places is an important clue to which we pay little or no attention. That we are able to adorn our offices only with plastic and silk plants, or living plants which only survive by being removed on a regular basis for resuscitation, is in itself a revealing but sad commentary on the suitability of internal environments for living things.

In addition to the 'transformative subjugations' of our external environments we also synthesise and manufacture the foods and liquids we consume. One such example involves the use of technology to transform natural foods into artificial foods by adding preservatives to increase their 'life'-span. Furthermore, we add chemicals to 'improve' flavours and colours of foods. However, by processing foods in such a way we virtually destroy the nutritional value and flavour they would otherwise possess, and as such we attempt, in vain, to replace through fortification the nutritional value we have taken from them.

Our obsession with the synthesising of virtually every type of food should be approached cautiously. Ashton and Laura state that:

[a]lthough we have—largely through the influence of advertising—come to regard as palatable and attractive the array of synthetic foods that have been fabricated as surrogates for real ones, it is clear that the progressive use of synthetic ingredients as substitutes for nature's own products, has resulted in a progressive reduction in the nutritive value of what we eat (Ashton and Laura, 1998:93).

We endeavour to screen the loss of nutritional value stripped away by the technological conversion of our foods, by applying even more technological interventions, transforming our foods from the living



reflection of nature that they once were, to the image of the lifeless machine. Therefore, we not only surround ourselves with dead things, but we also take these dead things into our bodies.

Yet another component of 'transformative subjugation' relates to our direct skin contact with manufactured chemical environments. With rare exception men and women have unwittingly spread their bodies with the technologically deadened chemical products of nature. The range and quantity of chemical cosmetics and associated beauty products within today's society are virtually unlimited. Consider for example, our habitual use and dependence upon chemical cleansers, creams, moisturisers, foundations, anti-wrinkle and blemish applications, powders, mascara, artificial tanners, lipsticks, deodorants, perfumes and body fragrances, shaving creams, not to mention chemical components found in soaps and sunscreens, sometimes applied to the skin several times a day, especially in hot climates. For more on this theme see, Ashton and Laura (1998).

The prophetic destiny of this power driven epistemology is fulfilled by its legacy of domination and control. When all is said, technology achieves its promise of control and subjugation by taking the living things of nature and transforming them without conscience into the dead things of our own creation. Every application of a technology of power results ultimately in converting something which is living into things which are chemically inert, lifeless or dead. The covert rationale presupposed by technologies of power is that the deader something is, the more predictable and thus more controllable it is. The more chemically inert a thing is, the easier it becomes to subsume that thing under the aegis of mathematical laws designed to quantify its behaviour. The more alive and conscious something is, the more incalculable its behaviour becomes. This being so, the world of technological control determines that the world be reconstituted by things which have as a consequence of their technologisation had the very life within them systematically withdrawn from them. Technology has indeed made us powerful, but the world over which it has bequeathed us power is a world of dead and inert things. The technological world is a world we may to a large extent control, but the world we control is paradoxically in essence a world of death and conformity. Driven by the lust for power, the form of knowledge we have selected to propagate in our educational institutions shapes, informs and conditions the forms of technology which grow out of it. From this it follows that our technology is as value-laden as is the concept of knowledge underpinning it and in the sense of transformative subjugation specified above, antithetical to environmental goals of respect for and cultivation of the living earth.

### ***Towards a Theory of Transformative Subjugation***

Technology is not a neutral concept, awaiting our application of it to judge whether it is used for good or bad. It is to be conceded from the outset that some applications of technology may be more heinous than others. The point of our deliberations, however, has been to show that the lust for power is the pre-condition or presupposition which conditions even the most beneficial applications of technology. It is the logical character of a technology driven by power to transform the world of nature into increasingly synthesised and artificial environments. To achieve this end virtually every application of our technologies of power result in the systematic conversion of living things into increasingly inert things designed to admit greater control and predictability than the living things from whence they came. Technology subdues nature by transforming it, and it is this sense of deprecatory conversion process that is depicted by what we have called the principle of 'transformative subjugation'.

Part of the covert rationale for the technologisation of nature is that technology will transform the world in such a way that it becomes progressively shaped to suit our every purported need. This being so, our interaction with nature has been confined largely to our attempts to dominate and control it by reconstructing it in ways which make it adapt to our views of what it should be like. This is one important sense in which we have, as a culture, sought total control and mastery over the environment. If night falls, we use the technology of power to turn night into day. If our homes or workplaces are too hot, we use the technology of power to convert warm air into cool air. When our food crops do not grow fast enough or abundantly as we would like, we coax them to obey our will through chemically fertilising the soils or genetically engineering the plants themselves. If our agricultural produce does not travel well, we engineer it to make it travel better, and if our supermarket goods do not have a long enough shelf-life to make marketing them worthwhile, we either irradiate them, dose them with preservatives which inhibit their demise or take from them their most living parts, (as when the food industry takes the germ from the kernel of wheat) to ensure that our foods are converted into products so inert that they are almost invulnerable to decay.

The way in which technology achieves this control is not only to transform things which are natural into things which are artificial, but further to take the things which have been synthesised and convert them into things which are even more artificial. What also happens in this context of transformative subjugation is that we surround ourselves progressively by the dead things which our machines produce or by things such as our machines themselves which are not living things.

By controlling nature, we have been misled, however, into thinking that we have thereby made ourselves more secure. The problem is not just the obvious one of environmental degradation, for example, the much discussed despoiling of our rivers and lakes, our toxic assault upon the sea, the pollution of the air we breathe and the mindless rape of the land. What we are endeavouring to bring to bold relief here is that the environmental crisis confronting the world globally is far more subtle and relates to the very philosophy of nature to which we have unwittingly been committed by virtue of the concept of knowledge we embrace and have unabashedly, even proudly proclaimed in our 'halls of learning'.

Whatever the problem nature presents and wherever a conflict of interest emerges between our interests and those of the environment, the outcome is almost always the same. We rely on technology to control nature by using technology to transform it. The more we seek to control nature, the more transformed and artificial it becomes and the more detached and alienated we ourselves become from nature.

### ***Mind Control***

With the foregoing framework at least inchoately established, we are now in a position to consider the extent to which the pattern of transformative subjugation extends to the field dimension of the human mind. Just as we synthesise the world of nature and both surround ourselves and literally consume the lifeless products of our technology, so we synthesise even our experience of the world and open our minds to the multifarious images of death (violence set in the context of news, murder mysteries, action films, real-life videos of police encounters and even documentaries, to name only a few). In the presence of T.V., videos, film and now even the Internet, we experience much of life vicariously, through the scripts of those who have reconstructed social reality for us. This form of media, and consequently the events portrayed through them, have not only influenced the ways in which we use our time, but have informed our very views about what we think we need and cannot live without. This being so, the media has figured predominantly in setting the context for the covert adoption of some of the most important values which define our culture.

We unwittingly receive unto our minds not only the synthesised images of people, either dead or dying, but we also open ourselves to the deadened images of people tormented and broken by the misfortunes and adversities of life. What we witness are broken promises, broken relations, broken hearts and broken lives. We are tempted by the advertisements to adopt what must approximate a religious fervour to secure as much information as possible on the vicissitudes of soap-stars, as if their T.V. lives could be

equated with real lives. Not only are we distracted by this medium from experiencing life directly, but much of what we experience vicariously is itself a scripted unreality which we then replicate in our own lives. Here we have yet another synthesised environment but this time it is the environment of mind which has fallen prey to the process of transformative subjugation.

One way in which we convert our experience, or what might be called our 'endemic experience', of nature is through technologies of visual and experiential media such as the virtual reality computer which present even more powerful images of synthesised experiences as if they were actual experiences of actual things. Hobson and Williams (1994) in reviewing the technology behind virtual reality describe it as the vehicle enabling one to enter a computer generated environment that includes three dimensionality through sound, sight, and touch, creating 'almost' real experiences for the participant. The interesting aspect emanating from these writers is that virtual reality is a surrogate experience which cannot replace the reality of our direct interactions with the natural environment (Rutledge, 1996:580).

The ways in which these types of machines have permeated educational institutions, including projections and postulations about their future dominance within education have been discussed by Professor John Tiffin (1995). He stated that:

Within 20 years, a student will begin the day by zipping into a skin tight school uniform-like a ski suit but equipped with cabling and pressure pads to give it a sense of touch. Next he or she will don a school helmet and step into a virtual classroom, scan the virtual map, 'touch' the science lab and be cutting up a virtual rat seconds later in biology class. Early arrivals can chat with international classmates, even shake their virtual hands (Horsburgh and Jones, 1995:5).

This is the virtual class where student attendance is marked by telepresence from a home base, and teacher and classroom have no geographical importance, thus breaking down the integrity of the experience by neglecting the more subtle aspects of human interaction. Tiffin predicts that by the end of the century the national school system could be obsolete (Horsburgh and Jones, 1995:5).

While the notion of the virtual class may seem to some to be overindulgent, the dominance of technology and the ever increasing presence of the machine which today facilitates so much of our educative practices and procedures, would hardly have been imaginable 20 years ago. Moreover, the issues raised by the prospect of the emerging 'cyberspace universities' are even more sobering philosophically. 'Global masters degrees over the Internet have already been awarded to Australian post-

graduate students after 14 months work in virtual classrooms on the Net. With an estimated 125 million projected users of the Internet over the next two years, the growth potential of cyber degrees is enormous' (Healy, 1995:35).

In this sense the synthesised world of virtual reality is tantamount to a whole new technology for the control of the mind. Moreover, because so much information can be processed at once, cybertechnology also provides new ways of exploiting and expropriating the precious resources of the earth at phenomenal speeds. Rifkin suggested that 'information theory' and 'cybernetics' used as a model for explaining nature's evolutionary advance, only ... 'provides humanity with an updated rationale for its continued manipulation of the environment' (Rifkin, 1989:215).

It is useful here to turn to Jean Baudrillard whose arguments about simulacra provide us with further evidence of our consequent detachment and alienation from nature. Baudrillard's contention is that reality is increasingly being replaced by a simulated world of images and events. He utilises the notions of the 'simulacrum—the copy without an original—and simulation', in exploring the ideas of mass reproduction and reproducibility that define our electronic media culture. (See, Baudrillard, 1994).

Baudrillard argues that the primary significance of the exchange of material goods has been substituted with the buying and selling of signs and images which have little, if any, association with material reality. This being so, things have become more associated with the images representing them than the substance of which they consist. Baudrillard maintains that signs in human culture have moved through four principal stages. The first stage is where signs are a reflection of a basic reality. The second stage is where the sign masks and perverts some basic reality. In this sense, images become a distortion of the truth, though they may not necessarily have lost all association with material objects. The third stage is where the sign masks the absence of some basic reality. Finally, the fourth stage is where the sign bears no relation to any reality whatsoever, and in this sense, it stands as its own pure simulacrum (Baudrillard, 1994:6). In this context, a simulacrum is an image of something that does not exist and has never existed. Baudrillard's assertion is that modern society is grounded on the production and exchange of free floating signifiers, that is, words and images, which have no association with what is signified.

Baudrillard endeavours to illustrate his claim by appeal to examples such as the following. He depicts Disneyland as 'a perfect model' of a simulacrum. It is an image of what are already imaginary worlds, such as the world of the Pirates, or the world of the Frontier, and more obviously the Futureworld. Simulacra are not of course limited to theme parks. Baudrillard contends that the whole of Los Angeles is a type of fictional world based upon stories

and images that have no basis in reality. On his view, Los Angeles is 'nothing more than an immense script and a perpetual motion picture' (Baudrillard, 1988:172).

In modern societies the prevalence of signifiers is predisposed to the destruction of any 'reality' to which they might refer. Baudrillard provides a number of examples for reflection. These include the following: a Philippino tribe called the Tasaday, the mummy of Ramses II and a family called the Louds who were the subject of seven months of uninterrupted filming in a 1971 documentary shot in the United States. The Tasaday Indians were first encountered in an isolated area of the Philippines in 1971, and anthropologists soon after began to study them. Concerned that the traditional culture of the Tasaday was being destroyed by this process of intervention, Philippino government bodies decided to return the Tasaday to their life of isolation apart from contemporary civilisation.

This at the suggestion of the anthropologists themselves, who were seeing the indigenous people disintegrate immediately upon contact, like mummies in the open air. In order for ethnology to live, its object must die; by dying, the object takes its revenge for being 'discovered' and with its death defies the science that wants to grasp it ... It is against this hell of a paradox that the ethnologists wished to protect themselves by cordoning off the Tasaday with virgin forest ... The Indian thus returned to the ghetto, in the glass coffin of the virgin forest, again becomes the model of simulation of all the possible Indians *from before ethnology* ... Of course these savages are posthumous: frozen, cryogenised, sterilised, protected to death, they have become referential simulacra, and science has become pure simulation (Baudrillard, 1994:7).

In this sense, scientists have also compromised the 'authenticity' of the mummy of the Egyptian Pharaoh Ramses II. Once it was excavated from its original site and relocated in a museum, the altered conditions caused it to degenerate, thus requiring that scientific methods had to be used in an effort to preserve it and restore it to its original state. In doing so however, the techniques employed simultaneously altered it irrevocably, thus destroying its authenticity.

Similarly, the relationship-dynamics of the Louds family were irrecoverably altered. Selected as a 'typical' Californian family, the Louds found themselves the subject of 300 hours of filming which was then broadcast to project their lifestyle to the American nation. During the process of filming this 'hyperreal' family was so dramatically altered that various of the family members went their separate ways and the family literally fell apart. Once again, our efforts to capture 'reality' inevitably lead to its transformation, or reconstruction, and occasionally its destruction. In this sense, the world we live in is populated largely by the images of

things we have ourselves by virtue of our interaction with them, created.

Simulation, for Baudrillard, 'threatens the difference between the "true" and the "false", the "real" and the "imaginary"' (Baudrillard, 1994:3). Simulation does not attempt to furnish us with equivalents for the real, nor does it attempt to reproduce it—it reduplicates and generates it. The very meaning of the real henceforth is that of which it is possible to provide an equivalent reproduction. According to Baudrillard,

[s]imulation is no longer that of a territory, a referential being, or a substance. It is a generation by models of a real without origin or reality: a hyperreal ... It is a question of substituting the signs of the real for the real, that is to say of an operation of deterring every real process via its operational double ... Never again will the real have the chance to produce itself (Baudrillard, 1994:1-2).

The consequence is our profound alienation from the world of nature out of which we are born.

### ***Transformative Subjugation and Conformity***

There is another dimension of the ramifications of transformative subjugation which impacts subtly and directly not only upon health and environmental education but upon education in its most comprehensive expression. Given our unbridled commitment to the technologisation of nature, it is perhaps unsurprising that the systematic transformation of living things into dead things in the service of predictability and control leads to staggering conformity. Living things constitute dynamic systems which constantly change, adapt, interact and engender diversity. This is one reason why it is difficult to predict and control behavioural exemplifications of living things. Designed to maximise predictability, technology converts living things to dead things or into things which are highly inert and lifeless, in ways which in turn maximise control through their conformity. It is easier to mass produce commodities which are the same than it is to produce commodities which are different. This being so, the manufacturers can more readily predict and control production rates, as well as the longevity of the product, its marketability and resilience. The price of this predictability and control, however, is depressing conformity at the expense of exhilarating creativity.

When one reflects upon the character of the things which undergo transformative subjugation in regard to synthesised environments, the extent of their conformity becomes palpably clear. Consider, for example, a typical lecture theatre, cinema, restaurant or other public building with substantial seating arrangements. The first thing to notice, beyond the fact that the immediate environment is likely to be made up almost entirely of

the dead products of technology, is that the dead things with which we so willingly surround ourselves are respectively all of the same kind. The sea of chairs before you, from 10 to 10 000, for example, are likely all to be made of plastic and metal, constructed in exactly the same shape, and painted exactly in the same colour. Cast your eye to the light fixtures. They are likely to be all the same size and shape, with exactly the same artificial light globes. The drapes will be the same, as are the tiles or linoleum on the floor, the size, colour, shape and even pattern of bricks on the wall. If you move to an adjacent room, you will likely discover a mirror image of the form which you just left behind. Everything is the same or so close to being the same as to make their differences negligible. This is true of institutional carpets, overhead projectors and even white boards. If you were not certain that you just walked from one room to the next, there is little or nothing in what you actually see, other than a different number or name on the door, to convince you that you had even moved. Not only do we surround ourselves with dead things but the dead things with which we surround ourselves have lost their identity and individuality. We thus re-order the world of nature by reconstructing the living things of nature into the dead things of our recreation, and in doing so, we expose ourselves to environments constituted not only of lifeless things and dead images but of monotonous and meaningless commercial products of staggering conformity.

As far as we have been able to ascertain from the literature, no one has to date explored the adverse impact of such artificial and boring conformist environments not only on human health but on the human spirit and the creative imagination of the mind. How can we be maximally stimulated to cultivate our own or our children's creativity if we voluntarily surround ourselves and those we love with environments made up of inert and lifeless things, along with images of death and conformity? Why should we expect the human mind to be awake, alert and alive to learning if the environment in which it finds itself by its very design fails to stimulate these virtues? Extend this pattern of the technological production of synthesised conformity to education's current obsession with the computer. Consistent with our earlier scenario of the conformity which fills our immediate worlds and the deadening of our environments, the addition of computers to the desktops of classrooms is itself but the addition of another piece of conformist furniture. The appearance of each computer in the room will almost assuredly look as every other computer looks. Not unlike the desks on which they sit, every computer is made of the same artificial materials, is virtually the same shape, the same colour and the same size.

As if the conformity which results from surrounding ourselves with the deadness of our machines is not enough, consider the conformity of what



we educationally prescribe as the newest mandatory form of knowledge acquisition in our schools via the computer. The educational ideal pursued in this regard is that every school student should have daily access to a computer for increasing periods as students advance through the grades. What seems not to be acknowledged about this recent development in knowledge skills and acquisition is that just as all the computers are the same on the outside, they are, in an important educational sense, all the same on the inside. To put this less provocatively, there are a limited number of computer learning programs available in schools, written by a small number of people (compared to the population of computer users) who reflect a particular, dare we say technological way of seeing the world and thus of organising human experience. No matter how valuable that perspective and associated ways of thinking may be, they represent only a small portion of the spectrum of ways of thinking about the world. What has happened almost imperceptibly as a consequence of the national and global proliferation of educational computers is a philosophical shift to institutionalised intellectual conformity. We and our children are being coaxed, cajoled and forced into thinking about the world of ideas primarily in ways which can be accommodated by the small number of computer programs, if not available, then actually used in schools. If education by way of knowledge acquisition stands for anything worth preserving, then it must at least protect its commitment to the continual enhancement of the intellectual imagination.

By obliging schoolchildren around the globe to think primarily and increasingly in ways that are circumscribed by the machines we create, we have also covertly encouraged in our schools an invidious conformity of *thinking* about the world in *machine-like* ways. By virtue of the process of reinforcing a progressive movement towards the intellectual conformity which results from seeing the world through the 'eyes' of the computer, education has inadvertently encouraged progressive movement towards the death of the mind. If there is a difference between indoctrination and education, it must surely lie in the different things we do either to stimulate and nurture the intellectual imagination or to stifle and diminish it.

Thinking in the context of the computer is in essence a binary process of reasoning, but it is salutary to remind ourselves that it is only one kind of reasoning amongst many types of reasoning. Just as education has revealed its bias in favour of promulgating a particular form of knowledge (an act of conformism in itself), so it is that by committing itself to the universal goal of computer-learning, education betrays another bias in favour of the promulgation of a particular form of reasoning, an act of educational conformism no less pernicious than the obsession with knowledge as a form of power and control.

One central philosophical problem with our mindless commitment to the computer, is that the kind of imagination which is required for the liberation of nature, the human spirit and the human mind is systematically excluded from the binary process of computer technology. Thinking in ways which are primarily delimited by the binary processes that characterise computer thinking, both inform and condition the way in which we perceive and interact with nature. While it is possible to think with computers in a range of interesting ways, the framework domain which sets the scope and limits in regard to those ways of thinking are quite rigidly circumscribed by the nature of the programs which can actually be utilised by computers. In other words, there are certain structural boundaries to the creative imagination which are endogenous features of machine-like ways of thinking. In essence what happens is that the structure of the computer process of reasoning serves in the end to delimit the boundaries of human thought in ways which transform living thought into synthesised exemplars of mechanistic reasoning. In a bizarre sense, the metaphor of the computer as 'artificial intelligence' thus turns back on itself as it transforms the boundless domain of natural intelligence into the artificial confines of a synthesised one. The dynamics of this process unfold themselves on the one hand by encouraging conformity of intellectual response, while on the other hand, institutionalising a form of life outside our schools which requires that students must be computer literate to survive in it.

The mordant irony of all this is that the very concept of knowledge which we have put as the centre-piece of our learning is the very concept which gives rise to technologies power resulting in transformative subjugation. The more we turn to a form of knowledge driven by our insatiable appetite for power, the more destructive of the living things of nature our technologies will become. Amidst a litany of seemingly endless technological transformations of the things of the natural world into an artificial and highly synthesised environment, we have created an environment inimical to the health of the human organism and the ecological integrity of the environment. Having systematically transformed the world of living things into a world of dead things, the environment we have reconstructed for ourselves to live in is constituted largely, as we have seen, of the dead things of conformity and artificiality. This being so, we submit that the technologisation of nature, sponsored on the assumption that the value knowledge has is in the power it gives, has led to the reconstruction of natural environments into artificial and highly synthesised environments, in respect of which the human organism is well adapted *neither psychologically or physiologically to live in*. In our technological efforts to make it easier to live in the world nature originally provides for us, we reorder and reconstitute it in many ways which may well make it impossible

for us to continue to live in the environments we create for ourselves.

By hoping to satisfy our insatiable appetite for dominance and the subjugation of the world in which we live, we have separated ourselves from nature and thus made it easier to exploit and degrade it without conscience. We have failed to see that the idea of rectifying the disastrous side-effects of scientific technology by developing more sophisticated forms of it is rather like trying to put out a fire by pouring petrol on it, simply because it is a liquid.

The problem is that preoccupied by the desire for power and dominance, technological intervention will continue to be fundamentally alienating and destructive. The commitment to a technology of power may turn us into giants, but the loss of vision will ensure that we are giants who are truly lost. The paradox of progress is that our best efforts to make ourselves infinitely strong have made us infinitely weak and therefore on the very brink of extinction. The paradox we face can be likened to the giant earth God Anteus from Greek mythology, whose source of strength was his bond with the earth. The myth goes that whenever Heracles tried to defeat Anteus, he was bound to fail because Anteus had the strength of the earth to sustain him. Whenever Anteus' feet remained firmly planted on the earth, that is to say, his own strength was the strength of the earth. Later on, Heracles reasons that he can only defeat Anteus 'by raising him in his arms' off the surface of the earth, and this he does, thus defeating him (Grimal, 1973:143). Not unlike Anteus who was wrenched by Heracles from the source of his strength in the earth, transformative subjugation robs us of the source of our strength, our health and the integrity of the human spirit, as it manifests in our bond with nature.

The extent of our alienation from the earth is well illustrated by the fact that we use the terms 'dirt' and 'soil' pejoratively. Dirt, after all, is the substance of the earth, as is the variant expression 'soil'. We depend upon dirt/soil as the womb of the earth within which the planted seed (through being nurtured by the earth) grows into the fruits, vegetables and grains so eagerly harvested every season. Despite the obvious truth that we are totally dependent on the earth (i.e., its soil/dirt to provide the source of nourishment, not unlike the dependency of a breast-fed child upon its mother), we cavalierly take the names of the earth in vain. We say of someone for whom we have contempt, for example, that he is a 'dirty bastard' or a 'dirt bag'. In some cultures it is said of a woman who has lost her virginity before marriage that 'she has been soiled', and we often say of a person who treats another person badly, that he 'treats her like dirt'. These usages of dirt and soil betray at a very deep level of human psyche the extent to which we have through the technologisation of nature been disenfranchised from the earth by the negative ways in which we think about

the earth. The negative connotation we associate with the names of the earth is a sad commentary on our separation from and lack of gratitude for the source of our life in the earth.

We have also observed the extent to which the process of transformative subjugation applies educationally to the development or lack therein of the human mind. If our commitment to the technologisation of the earth results in conformity of the intellect, the question arises whether we thereby witness not only the death of the intellectual imagination but in the end, the death of education as well.

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