Journal of Education and Culture Studies
ISSN 2573-0401 (Print) ISSN 2573-041X (Online)
Vol. 1, No. 2, 2017
www.scholink.org/ojs/index.php/jecs

Frontiers in Environmental Education: Philosophical Reflections on the Impact of Power Epistemology and Consumerist Pedagogy in Environmental Education

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Received: May 2, 2017 Accepted: May 12, 2017 Online Published: August 16, 2017

doi:10.22158/jecs.v1n2p164 URL: http://dx.doi.org/10.22158/jecs.v1n2p164

Abstract

In this paper we argue that an educational ideology, based on an epistemology of power and consumerism, has become embedded within the structural foundations of Western Education. The combination of a power-based epistemology which informs curriculum design on the one hand, coupled with a consumerist educational ideology of universal commodification on the other, have served to provide the basis for a persuasive but pernicious philosophy of nature. Virtually every relationship we have with nature, and in turn with each other, is reduced to a saleable item for exchange. The radical shift in socio-cultural perspective which has resulted from what we call an "ideo-epistemic pedagogy" has been both monumental and inimical to the ostensible goals of environmental education. Motivated by an ideology in which knowledge is construed as a "form of power", and linked to relentless economic consumption, contemporary environmental education will simply reproduce, albeit in beguilingly inferential ways, the same contextual dynamics of technological invasiveness and mindless expropriation of natural resources that continue to lead ineluctably, and almost imperceptibly to the decimation and degradation of nature.

Keywords

environmental education, consumerism, ideological epistemology, knowledge and power

1. Introduction

Given the incontestability of the deplorable state of environmental devastation caused by mankind's technological intrusions upon the earth, our objective here is to make explicit a particular facet of the aetiology of this crisis by teasing out the ideological presumptions upon which the purpose and patterns of our technological interactions with nature and the commitment to unlimited economic consumption

have been built. One of the fundamental causes of environmental degradations, we shall contend, is due to the emergence of an epistemological pedagogy based upon humankind's insatiable drive for power and dominance over nature (Yigit, 2013). One facet of this lust for power is tacitly entrenched in a dominant educational epistemology which conceptualises knowledge as tantamount to "power" and an institutionalised form of control over nature. In turn, the primary methodology of science, i.e., reductio-mechanism, we shall argue is itself implicitly controlling. Reductio-mechanism operates on the presumption that nature is a machine-like system that can be disassembled into its component parts, such that the parts can be reconfigured, technologically manipulated, and then reassembled to suit the caprice of human consumption, and all too often, the vested interests of the politics of economic growth, directed by corporate power-brokers (Lederman, Benbow, & Wheeler, 2007). The methodology of reductio-mechanistic science presupposes the separation of the "observer" from what is "observed" (i.e., the disconnection of man from nature), because it is assumed that methodological detachment from the things science observes maximises the "objectivity" of our interpretive assessments of the nature of the things under investigation. We submit that this is an assumption which evinces a deep misunderstanding. In contrast to this philosophy of detachment we shall argue that knowledge and the applied technologies which derive from it are value-laden processes, whose implications for environmental education are momentous. Knowledge is not a value-free enterprise (Kopnina, 2014). We shall argue that although we gain a significant measure of control over the world in which we live by methodologically sanitising it, the reductio-mechanistic transformations we make of that world become increasingly chemicalised, inert, lifeless and dead. This being so, we argue that the control which we gain over nature comes at the ecological price of making the world in which we reside more chemicalised , synthetic, inert and lifeless.

2. Technological Intervention and Consumer Education

It is only in recent decades that we have become aware of the environmental plight which now affects us globally, so it is perhaps unsurprising that we continue to act on the assumption that the same reduction-mechanistic thinking that got us into the morass of environmental degradation will ultimately get us out of it (Ezeife & Arivalagan, 2006). This methodological presumption is intricately woven into the conceptual fabric of the ideological tapestry which portrays knowledge as a form of power. We have been inculcated with the belief that the power we gain from our technological innovations will serve as the panacea for our environmental problems, without fully comprehending the additional complications and consequences of technologically mediated interventions (Laura, 2010). The microcomputer was believed to be a panacea for all the educational problems dealing with instruction during the 1980s (Harrington, McElroy, & Morrow, 1990; Knowles, 1983; Lowe, 2002). Even on those rare occasions when we have been able to discern the adverse impacts on the environment associated with the social indiscretions of technology, we continue to believe that we possess the technological ingenuity to deal with any problem that besets us (Kopnina, 2014). For example, incorporation of

electronic tools, such as computers and videodiscs, into classrooms must be accompanied by systemic change in the educational process. Successful utilization of technology depends on how we provide teachers with the necessary environment for training, tools for instruction, and technology evaluation skills (Kimmel & Deek, 1996). So we act as if it is only a matter of time before we find the solution. In order to keep pace with this global trend, the incorporation of technology has been applied into the school curriculum, and teachers are being instructed in the technical use of computers (Angulo, 2001). Technology is thus revered as the panacea for all our problems, without understanding that there are bound to be new problems which will inevitably accompany and be caused by novel technological interventions (DeCastro-Ambrosetti & Cho, 2002). Technology has been touted in the media as the panacea for educational reform. However, inequities were being perpetuated, based on the lines of gender, race, tracking, subject areas, and urban versus rural settings (Becker, 1991). The "Technological Fallacy", as we shall call it, thus arises from thinking that the continuing commitment to ever more advanced and improved technology is the most effective and appropriate solution to the problems which our technological intrusions have created in the first place. What we fail to realise is that the higher the level of technological intervention in the service of problem resolution, the more disruption we are likely to cause to the established harmony of our delicately balanced ecosystems (Lowe, 2001). As the use of technology increases in schools, how are multicultural issues being attended to or incorporated into this new culture of education? Apple (1989) states, "However, by focusing on what is changing and being changed, we may neglect to ask what relationships are remaining the same" (p. 228). Educationally, what are the social implications of the infusion of technology into curriculum? Banks (1997) note, "The challenge to multicultural educators, in both theory and practice, is how to increase equity for a particular victimized group without further limiting the opportunities of another" (p. 7). Appreciation of this point should encourage environmentalists to be more cognisant of the vicious circle of environmental destruction which results from this mindless belief that improved technological intervention is the panacea for the problems associated with our previous technological indiscretions (Russow, 2003).

Our main contention here is that the degradation and dissolution of the once established harmony of nature's ecosystems are a direct result of economic progress, coupled with ever more intensive levels of high technological intervention, motivated by greed, and the obsession with power and dominance. The problem, that is to say, is not just an "empirical" one of determining whether this or that technological solution works, but rather a "philosophical" one of understanding that technological solutions, applied even to technological problems can make those problems worse, if in principle "technology" is itself the primary source of the problem. We submit that it is becoming increasingly evident that the more society relies on unlimited technological and economic progress to resolve our problems in order to make a better world, the more we actually commit ourselves to a world in which nature and society become progressively fractured and degraded, Relentless technological intervention in this context

becomes paradoxically self-stultifying (Laura & Ashton, 1990; Ashton & Laura, 2004; Laura & Cotton, 2005).

Despite the enormous drawbacks with technological cures or "techno-fix solutions", there is still a wide spread culture belief, if not a groundless faith, that technology will find a way out of our multifaceted crisis. Hutchinson (1998, pp. 136-137), for example, has alluded to a number of surveys in the United Kingdom regarding children's hopes and fears for the future. The general conclusion of these surveys was that as children grow older, the more pessimistic they become about the world around them, a world which they see in crisis. It is interesting to note, however, that while these children remained pessimistic in their perception of a world future, they—more so the boys than the girls—still embraced "uncritically technocratic dreaming or glamorous high-tech solutions to things" (ibid).

Consistent with our mindless obsession with technology and its utopian vision, there is little doubt that the educational promulgation of such faith in the invincibility of modern technology inadvertently increases the hideous magnitude of our current environmental and health crisis.

While "raising the standard of living" may be nebulous shorthand for the worthy aim of ending severe deprivation, translated into shared understanding and policy the expression is a euphemism for the global dissemination of consumer culture—the unrivaled model of what a "high standard of living" looks like. But to feed a growing population and enter increasing numbers of people into the consumer class I a formula for completing Earth's overhaul into a planet of resources: for ever more intensified uses of land and waterways for habitation, agriculture and farming; for the continued extraction, exploitation, and harnessing of the natural world; and for the magnification of global trade and travel (Crist, 2012, pp. 141-142).

Furthermore, it is important to understand that the western lifestyle philosophy of relentless consumption is firmly enshrined in an educational epistemology of power as the matrix of academic pedagogy, so we will also embrace the destructive technologies of power and mindless consumerism to which gives rise. As Rifkin has pointed out, the picture is now abundantly clear: "Our entire learning process is little more than a twelve-to-sixteen-year training program for the Newtonian world view" (Rifkin, 1980). Education, that is to say, is tantamount to an institutional initiation into the reduction-mechanistic world paradigm. Following on from his elaboration of the Baconian commitment to knowledge as power which underpins western society's value orientation towards the earth, Rifkin has also argued that the majority of "school children are weaned on Bacon's method" (1985, p. 17). From the very outset of our schooling, Rifkin has explained, we are educated to believe that the world is a collection of objective facts. We are then introduced to the Baconian account of scientific knowledge as the best way to discover what those facts are and how best to exploit them purportedly for the advancement of humanity. With regard to this Baconian perspective, the final rub is that: we "…are encouraged to create distance between ourselves and the world, to detach ourselves so that we can sever our natural relationships with things and turn them into objects for manipulation (ibid, 1985, p. 17).

3. Reductio-Mechanism and Transformative Subjugation

In the light of the forgoing discussion it should be evident that the posture we assume and the attitudes we take towards nature have been covertly dictated by the theory of knowledge we have endorsed, along with the reductio-mechanism methodology and technologies of power which derive from it.

Given the commitment of western education to an epistemology of power, it is unsurprising that consumerism should be regarded as a way in which our successful conquest of nature is expressed. Education thus functions unwittingly to propagate an ideology which hypostatizes the values of power, control, specialisation and efficiency which lie at the very heart of the educational epistemology to which we have been alluding. Commenting on western style "mechanistic management", Capra has noted: "The mechanistic approach to management has certainly been very successful in increasing efficiency and productivities, but is has also resulted in widespread animosity toward organisations that are managed in machine-like" (2002, p. 91). In a similar way, since the Industrial Revolution, our schools have, in true reduction-mechanistic fashion, functioned as scaled down copies of efficient, specialised, organisations. 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 resemble that of the schools itself (Toffler, 1971, p. 362). The temptation of educational institutions to replicate by the way of their own organisational structures the industrial contexts for which they prepare students has been overwhelming (Laura & Cotton, 1999, p. 130). In addition, Chomsky (1975, pp. 206-207), has opined 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 "throwaway" society consumerism is no longer a means to an end, but an end in itself (Laura & Cotton, 1999, p. 130).

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 Joneses". This competitive preoccupation has in itself resulted in massive social and global inequities, i.e., the relentless vicissitudes of the "haves and have-nots" (ibid). As Cousteau (1996, pp. 5-6) has explained, on a global economic basis, these inequities are fully consistent with the alarming imbalance of consumption between the western developed countries and those of the third world. The consumers of the western "industrial nations" represent about one billion people, compare to about 4.5 billion for the rest of inhabitants on earth. However, on average a person in the so-called

"developed countries" consumes "3 times as much as fresh water, 10 times as much as energy, and 19 times as much as aluminium as someone in a developing country" (ibid, p. 5). These very same developed countries also generate "96 percent of the world's radioactive waste and 90 percent of the chloroflurocarbons that eat away at the ozone layers".

By hypostatizing the presumption of knowledge as power, education serves inadvertently to instil not only competitive consumer values, but the associated "throw away" ethics which conjures the mistake belief that nature is both an infinite reservoir for commercial resources and a boundless sink for the disposal of the by-products of industry. The resultant philosophy as we have contended, is fundamentally anti-ecological and has fostered a false sense of security. It is within this deference that Laura's "theory of transformative subjugation" proffers that the technologization of nature will lead ineluctably to its mindless rape (Laura & Cotton, 1999). Transformative subjugation stands as a powerful insight designed to expose the menacing process whereby the things of nature, which otherwise be deemed to have intrinsic value by virtue of their purposive connectivity with the whole of nature, are technologically converted and reduced to synthesised and inert fabrications in respect of which their autonomous value is either diminished or destroyed.

Given western society's commitment to the value of knowledge as power, the technologies we create from power-based epistemologies define our relationship with nature in highly disruptive and destructive ways. In order to make the world of nature as predictable as possible, technologies of power reconstruct and fabricate the world of nature in ways which make it more amenable to predictability. Technologies of power transform or convert things as they are found in nature (usually in volatile and highly reactive forms) into things or parts of things which are highly predictable, by virtue of their inertness, chemically exemplified or otherwise. By transforming the things of nature into forms of things which are more inert than the original forms of those things as found in the nature, science can make the world seem predictable (Kimmel & Deek, 1996). The problem is that the control which we gain over the world comes at too high an ecological price, the most namely, of having made of the world of nature more inert and less alive, so to say, than it was before our intrusion. We thus succeed in subjugating nature, it is to be conceded, but only because the world over which we have gained power and control has been made inert or "deadened" by our technological transformations of it.

A paradox surrounding transformative subjugation is inasmuch as environmental education continues to rely heavily on technological solutions to environmental problems, it inadvertently encourages at subtle levels of our interactions with nature the substitutions with nature the substitution of living environments with highly inert ones (Kopnina, 2014). In this regard we have endeavoured to extend the argument here to reinforce the point that, the more successful we are in making the world scientifically predictable, the more we make the world of nature ecologically inert. This is the deeper sense in which the persistent commitment of environmental education to technological solutions which derive from the specific presumption of epistemologies of power represents a pedagogic strategy ironically inimical to the ostensible goals of environmental education (Shaw, 2003). The very application of such

technologies literally exacerbates the more universal and long-term ecological problems we face by substituting increasingly inert environments in place of living ones.

Moreover, it is by separating ourselves from the world that nature can, through technology's transformation subjugations of it, be manipulated without conscience, harnessed for commercial exploitation and mindlessly consumed. The conventional concept of knowledge as power assumes a distinction between the knower and the known, or to reiterate the conventional, though in many circles now outdated terminology, the distinction between subject and object. Within the structure of the traditional school curriculum, however, it is still presumed that knowledge is achieved by detaching students from their observations, so that their judgments can be objective. The world exists, so the realist presumption of the educational epistemology of power decrees, independently of what we say and think about it, or even how we behave towards it. The concept of knowledge as power rests firmly on this assumption, and we would further contend that institutionalised distinctions between the subjective and the objective domains of knowledge are tenuous and misleading, as are the distinctions between subject and object, knower and known. Perhaps the most explicit mention of the caution against environmentalist advocacy is made by Wals and Jickling (2002, p. 225):

If we juxtapose more instrumental views of "education for sustainability" with more emancipatory views of "education for sustainability" we can imagine, on the one hand, an "eco-totalitarian" regime that through law and order, rewards and punishment, and conditioning of behavior can create a society that is quite sustainable according to some more ecological criteria. Of course, we can wonder whether the people living within such an "eco-totalitarian" regime are happy or whether their regime is just, but they do live "sustainably" and so will their children.

We assert that within this power-laden epistemological domain, for the objective control and subjugation of nature, contemporary environmental education itself becomes unwittingly transformed and subjugated (Hursh, Henderson, & Greenwood, 2015). Given the alluringly effective nature of scientific reduction-mechanistic methodology, students of ecological and environmental studies are provided with specialised answers to environmental problems which are then formulated in the guise of objective knowledge, and applied as interventionist transformative technology. Such a reduction-mechanistic methodological approach severs only to further our disconnection with nature (Affifi, 2011). This explains why there is little hope encouraging "environmentalism" simply by implanting the epistemology of environmental concerns into the existing educative system which continues implicitly to adopt and transmit the anti-ecological values enshrined in its reduction-mechanistic methodology of power epistemology.

This being so, the goals of environmental education are unlikely to be well-severed by turning to the existing dominant paradigm of educational knowledge whose technological applications have proved by their very nature to be profoundly ecologically exacerbating.

4. Towards a Theory of Empathetic Education

To reformulate our introductory remarks: Unless the form of educational knowledge we select is motivated by empathetic connectivity with the world of nature rather than by a lust for power over nature, our efforts to achieve ecological sustainability are doomed to failure. Environmental education will simply reproduce, albeit in alluringly cosmetic ways, the same contexts of technological invasiveness and intrusion that have in the first place led to the degradation and desacrilization of nature (Lieflander et al., 2013). Understanding environmental values is important to the success of environmental management. As Wilson (1984) wrote, "The future of the conservation movement depends on … an advance in moral reasoning" (p. 119). From a different perspective, Max Oelschlaeger (1994) wrote in his essay on the role of religion in environmental politics that "environmentalism necessarily involves a discourse on values" (p. 60). Once the knowledge as power paradigm is shifted from its position of epistemic priority, however, and replaced by empathetic forms of knowledge embedded in participatory consciousness, the real work of environmental stewardship through the educational process can begin (Lister, 1999). At the heart of a participatory mode of consciousness is an acute awareness of a deeper level of kinship between the knower and the known". This shift of perspective is not so much a methodological transition, as it is an act of consciousness which requires an attitude of profound openness and sensitivity.

In the light of recent discussions on quantum interconnectivity, human consciousness can no longer be described unambiguously as an element which admits of isolation and extraction from the external world. Some scholars hypothesize that environmental values derive from a sense of connectivity with nature. Connectivity describes a perception of sameness between the self, others, and the natural world (Jickling & Wals, 2008). The experience of connectivity involves dissolution of boundaries and a sense of a shared or common essence between the self, nature, and others. For example, physicist David Bohm (1990, pp. 173-185) has postulated an "implicate order" to reality in which human consciousness is itself an essential feature of the underlying order and unity of nature. The topology of nature cannot exclude the way in which consciousness is enfolded into it. Nature cannot objectified in the required epistemic sense because in essence we have ourselves become an element in the subject-matter we are trying to observe. We cannot separate ourselves from nature because we are, in the radically holistic interpretation, a part of it. In our attempts to measure and describe the world outside themselves, we are at one the same time describing ourselves.

Empathetic connectivity with nature affords a new vision of the scope of our ecological responsibilities (Sassoon, 1999). Appreciation of the inter-connective complexity of the web of life leads in turn to the necessity of redefining the tools of technology in empathetic-participatory ways. Recognition of this insight explains why technologies which derive from an educational epistemology of power are never neutral. Motivated by power and the human desire that technology will allow us to control nature, technologies will, by virtue of their very conceptions be tools of power, dominance and expropriation. The technologies we create, as we have consistently argued, are thus saturated with power. Given the

fundamental interconnectivity exemplified in the quantum world, for example, it is clear that for every increase in power brought to us by technology, there will be a corresponding diminution of power and consequent disruption to some other part of nature which results. We can look at this by way of a Quantum heuristic. For example, Werner Heisenberg, in his 1930 publication, *The Physical Principles of The Quantum Theory*, showed that whatever one attempts to apply classical mechanistic terminology e.g., wave, particle, position, velocity, etc. to subatomic events, they will invariably find that their definitions cannot be applied simultaneously in a precise manner. For example, give that we have two pairs of classical concepts (e.g., momentum and mass), the more emphasis we place on the predictability of one, the less certain we are bound to become about the other. In other words, the more control we place on one aspect of reality the less certain or disrupted our control becomes over other aspects of reality. Heisenberg has termed this quantum phenomenon, the "uncertainty principle" (Heisenberg, 1930, pp. 10-20).

When the concept of educational knowledge is motivated by four faith in the virtue of connectivity as the ultimate form of security within nature, our interactions with the environment will be oriented pedagogically to reflect more empathetic interactions with nature (Affifi, 2016). The measure of security is shifted in epistemic terms from how well our knowledge allows us to dominate and control nature to how well we know how to connect with and participate in the cosmic dance of nature's harmonic unity. This shift of epistemic vision encourages a transition of dispositional posture from doing battle against nature to being in partnership with it.

5. Conclusion

Our purpose has been show that new directions in educational leadership within the field of environmental education need to challenge the philosophical presumptions of power epistemology and consumerist ideology, if the ostensible goals of environmental education are to be brought to fruition. The traditional reliance on technologies of power, conjoined with unfettered consumerist ideology is doomed to failure. It has been argued that far from being value-free or neutral, both knowledge and technology are epistemically biased towards power and control. Thus, every time technology is used and in whatever way it is used, it will express that bias. A commitment to the epistemology of power is in essence a commitment to the transformative subjugation of nature and therefore inimical to the purported goals of environmental. Education itself has become scientifically specialised and technologized. Within this context we have attempted to show that the dominant educational epistemology which has become virtually pedagogically ubiquitous in the western world enshrines a reduction-mechanistic methodology of transformative subjugation, whose institutional expression gives rise to a consumerist ideology of value which is in principle anti-ecological. Unabated reduction-mechanistic science and its accompanying rationale of technological imperialism betray how easily knowledge of this kind can be used for anti-ecological purposes. The continued expression of this ideological perspective through technologies of transformative subjugation has bequeathed to us a

legacy of over-consumption and the concomitant desacrilization of the world in which we live. If we are ever to overcome the environment crisis, we can no longer acquiesce to our obsession with unlimited growth and the continued invention of tools of menacing power consummate with this end. Consistent with this rumination, we suggest that a resolution to the crisis can best be achieved by relinquishing our commitment to the reductio-mechanistic methodology of power epistemology, and by embracing instead a new paradigm of empathetic epistemology. In so doing we thus advance the frontiers of educational leadership forward to encourage a new pedagogy of environmental education, grounded in the holism of empathetic educational epistemology.

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