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Deep Education

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Abstract

This theoretical essay is to clarify what could be a deeper approach to education and its characteristics. The deep approach is a broad phenomenon that encompasses several domains. It manifest a turning point in the way we reflect on a variety of disciplines such as ecology, economy, engineering, mathematics, cross-cultural communication, psychology, and languages. The trend is influenced by semiotics—the science of meaningful signs—as an overarching discipline, process philosophy and complexity theory to address ontological dualism. The deep approach is an applied trend that is revolutionizing the ways we think about what should be accomplished in Education and Teacher Education, and how it should be done. It defines a move towards deeper conceptions of curricula in any disciplines and towards curriculum interconnectedness.

Key Words

Education – Teacher Education – Curriculum - Transdisciplinarity

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Introduction

The concept of "depth" in education emerged from a variety of disciplines, with the recognition that continuing business as usual didn't make sense within the current state of affaires in Education. Current shallow teaching and learning practices need to be interrupted. New formats should be explored for Education at large. There are certainly new, more profound ways of understanding each discipline, and teaching and learning them. Disciplinary fields such as philosophy (Naess, 1989) and educational philosophy (Ryan & Louie, 2007), ecology (Salleh, 2000), economy (McKibben, 2007), cultural studies (Shaules, 2007), psychology (Sternberg, 2007), ecopsychology (Roszak, 2001) and educational psychology (Berliner et al., 2007) have gone through a drastic revision of their curriculum approaches—not to speak of various other disciplines—in terms of depth of knowledge and deep reading (Roberts & Roberts, 2008). The time is ripe to introduce a new approach to Education. For a number of reasons that I explain in this theoretical essay, the new educational concept is being defined in terms of depth.

As an introduction to deep education, a few words of caution are necessary. The deep approach is not a 'method'. It is all about mindset and action. When human situations are reshaped into words, categories and classifications, a dimension is being lost that readers must recreate through their own experiences. Deep education is defined within the dynamics of living while this essay is in static wording. Concepts imply reductions, reifications and contradictions. Conceptual constructions have flaws, and often lack coherence whatever the efforts made to present a clear, logical line of arguments. Deep education is something people want to live and work for. It is never fully achieved, it is always in the making, and depends upon situations.

Another warning relates to methodological language. Such language gives an appearance of neutrality and objectivity but should not hide that methods are framed within philosophies. Teaching methods have been compelling in making teachers believe that they could apply certain methods to reach certain goals, and the framework was supposed to be neutral. Actually specifying goals for schools and for classroom learning implies value choices. Evaluating results is all about valuing certain tasks and devaluing others. Many teachers have become 'instrumentalists' in the sense that they never question the underlying framework for the methods they enact. They just have to apply the 'right' methods to reach the 'right' results, they were told. This was a wonderful way to maintain the status quo and perpetuate a society that may now appear as self-destructive. Nobody questioned the philosophy behind assessments. However, since Aristotle humans have been warned by numerous philosophers that restricting the motives of action to technical rationality is unrooted thinking, which may have devastating side-effects. Instruments, methods, strategies do not suffice to reach higher humane goals. Philosophy and theoretical wisdom must guide reflective practice, and only then should we start thinking about what instruments might be appropriate. Many methods of teaching seem backward in this respect, if only they would aim at certain wisdom of action. Here we will start from the philosophical rationale, to which the deep approach is subordinated. There won't be many *do*s and *don't*s here, but a philosophy with a duty tempered by reflection to enact it in the schools for the sake of working in the direction of our sustainability and fulfillment as a species.

Deeper Rationale for Education: End Collective Self-Destructive Behavior

As I developed in Tochon (2010 and in press), the rationale for the deep approach of Education is transdisciplinary. The Trandisciplinary Charter addresses the need for a global view of the human being due to the constant growth of knowledge (de Freitas, Morin & Nicolescu, 1994). The transdisciplinary project challenges "the spiritual and material self-destruction of the human species" (*Charter,* online). It considers that "life on earth is seriously threatened by the triumph of a techno-science that obeys only the terrible logic of productivity for productivity's sake". Consequently, increasing quantitative knowledge and increasingly impoverished inner identity lead to the rise of obscurantism with huge personal and social consequences. Specifically, the exponential growth of knowledge and access to it increases inequalities between the haves and have nots. "Transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond all disciplines. Its goal is the understanding of the present world, of

which one of the imperatives is the unity of knowledge" (Nicolescu, 2005, p. 2). Speaking of collective self-destructive behavior and sustainability of the species may sound shocking and possibly ungrounded. It does not mean that deep education could be a salvation technique, but it posits teachers in the quest for a deeper sense of humanity and humaneness. A brief reminder of some elements that define the current world situation may explain the need to change the current ways people are being educated. There might be numerous other sound rationales, and readers might not all agree on some details of the rationale proposed. The proposal can be considered food for thought as there is not space here to fully develop the arguments and evidence.

Modern science has been developed from the understanding that objective knowledge (or the knowledge of objects) should be distinct from subjective knowledge (or the knowledge of the subject); therefore the impacts of scientific developments on the human subjects have not been considered. Material conceptions of development impoverish the planet of its resources. Such conceptions of development have generated climatic conditions that are increasingly catastrophic. The environment is destroyed in ways that places the survival of numerous species at stake. Overpopulation reaches such a point that extreme poverty and mal-nutrition affects one third of the world population. Hunger accounted for 58% of the world's mortality in 2006 (Ziegler, 2007). Malnutrition of the mother or the child is the biggest cause of child mortality, accounting for 12,600 deaths per day. Eight children die per minute from under-nutrition according to conservative measures. Instead of reducing population at the entry in educating people to reduce the number of births, so far it was deemed more profitable to operate on accelerating the exit. Wars have become a major means of feeding predatory corporations. The barrier to improvement often appears to be the economic system that focuses on the biggest and quickest profits. Because of lobbyism and the way laws and decrees are set in place, the balance between law makers, justice, and the executive has been broken. As corporate power can't be held accountable for its unethical actions, business can go on as usual for a long time until a significant number of citizens realize that the situation is insane. Such awareness raising and requirement for power-down is not 'antimodern'; it adds an integrative wisdom to both modernity and postmodernity (Gare, 2000).

We live in a world that has lost its deep values. Shallow education, misinformation, intensified work and entertainment play a key role in disabling large parts of the population from even reflecting on the situation. Interpretations of the situation vary from the metaphor of the airplane that has lost its pilot to the image of the gloomy deportation trains inexorably driven to their end by fascist regimes, which metaphors obviously refer to possible and outrageous ways of not coping with the immense problem of overpopulation management. Sociologists such as Beck (2006) suggest that globalization can't be democratic. Elites are preparing the shift towards a post-nuclear society in a way that may appear to many as preferable to the mess resulting from the potential of annihilation. These issues provoke deep questions (Morin & Kern, 1999). Humans don't seem to have learned how to organize themselves with harmony. Their survival, as well as the survival of their environment, is at risk.

A narrow definition of economy restricts the vision of people to material goals. It can be considered the worst possible definition of economy as it is being developed at the cost of the lives of its supposed beneficiaries. Economy has become a deadly science as it provides power and tools to the most destructive, unregulated agents on the planet (Latouche, 2005). It is time that education be recognized as the primary applied science, that is science with conscience (Morin, 1964). For that purpose, education has to go deep and be allowed to address the real issues. This survey was not meant to be scary but to indicate that it is a good time to re-think the way curricula are organized as well as their contents: we can't continue business as usual. The philosophy of curriculum must change. In the following pages, we will explore depth in education from the perspective of deep politics, deep ecology, deep economy, deep culture, and deep language.

Deep Politics

'Deep politics within schools', as Andrew Gitlin (2005) puts it, could challenge the status quo. Examining everyday politics and reconceptualizing the position of the inquirer, he was looking for means that would challenge the status quo, considering that acting on social representations might

help the change process to address social hierarchies and inequalities. He found that a large part of education is assertive, in the sense that it does not tolerate critical examination but rather supports conformity, norms, standards and obedience. The goal of a deep politics of schooling would be "removing ourselves from mental slavery…and enter into a humanist inquiry project that employs imagination to foster change" (p.22). Everyday politic is grounded in ruled relations, it shapes "how we see people, our relations with those different from ourselves, and the conclusions that we draw about those relationships" (p.15). It should become the object of a constant inquiry. Some aspects of "politics of resistance" (Freire, 1970) are relevant here. However deep politics, rather than focusing on resisting the reproduction of hierarchies, centers on a freedom quest. It uses "imagination to redefine normative categories" (p.16), thereby initiating a process that can create a new terrain for equality. Thus deep politics link aesthetics with inquiry as a living process. Its commitment to social justice manifests through aesthetics to envision and create alternative imaginaries. Moral imagination provides the mythic ferment of the future, its inquiry process paints the new possibilities. Dream/critique forms political humanism and stimulates "our ethical potential to separate ourselves from the seduction of everyday politics" (p.17). It moves in the direction described by Marcuse to create "a revolutionary language that can break the spell of the established and the establishment of everyday politics" (p.18). In this process, what appears crucial is to step for a while outside one's culture to establish an ethical distance vis-à-vis everyday judgment, as conformism is imposed by a culture that uses the instruments of assertiveness to make its claim and produce authority, social hierarchies, power centralization, and delineate the margins of cultural acceptability. Deep inquiry, then, fits with "the effort to break the power of facts over the world, and to speak the language of those who establish, enforce and benefit from the facts" (Marcuse, 1960, p.x, in Gitlin, p. 18). It defines a new relationship with the world. It goes together with new, more interactional and open ways of expression. In this process, hope and love constitute non-foundational (i.e. non-universalist) foundations "at the heart and soul of humanness" (p.23).

Deep Education as a Philosophy

A philosopher named Arne Naess (1989) has developed the concept of deep ecology. Although his propositions apply closely to ecology, there is a clear connection between deep education and ecological goals. Therefore the principles of deep ecology deserve consideration here. Arne Naess was unhappy with shallow reforms. He proposed a deeper critique of human institutions and a "substantial reorientation of our whole civilization" (p. 45). The economic crisis might give us the opportunity to consider his reflections seriously. The philosophy of the deep approach is to seek "a fundamental change in the dominant worldview and social structure of modernity" (Katz, Light & Rothenberg, 2000, p. ix). It brings humanity to hard sciences and a new sense of their pragmatic potential to human sciences. Deep education concerns the whole person, it implies a sense of purpose and deep, transformational learning (O'Sullivan, 1999). Deep identity affects personal and professional decisions and choices as well as ideals and action. It is connected with environmental identity which influences decisions throughout life and is itself related to cultural identity (Sessions, 1993; Fisher, 2002). Environmental problems can be considered cultural phenomena and expressions of the consumer culture (French, 2000; Jacoby, 2003). Thus deep education involves a sense of one's deep identity (Jardine, 2004). The deep sense of human identity refers to who we are and how we see our role in relation to the world, the biosphere and the semiosphere, which is the world of meaningful acts. Deep education transforms the biosphere into 'semiosphere'—a world of meaningful signs—and creates a meaning-making environment for action. This transformation entails a sense of connection that manifests in values and actions (Thomashow, 1995). The transformation inherent with deep education supports a healthy environment "through an identification so deep that one's own self is no longer delimited by the personal ego or the organism. One experiences oneself to be a genuine part of all life" (Naess, 1989, p. 20). One consequence of this inclusive understanding is that people start perceiving the environmental damage, wars and destruction as if they were done to themselves (Macy, 1991). The sense of connection to the world and the earth precludes the behaviors and decision making that impact the environment (Berry, 1999). The sense of separation from the world and the earth is related to the harm we do to the social and physical environment. It is part of the consequences of the subject/object split. The barriers that consumer culture erects between us and the natural world is one

major cause of environmental destruction (Merchant, 1992). This is an aspect to which teachers must be made sensitive (Kentel, & Karrow, 2007). Deep Education promotes a philosophy of curriculum that explains and addresses the current stakes and that requires a deep transformation of humans and human society in the direction of greater harmony.

Deep Learning

Harmony defines a homeostatic goal that defines personal and social balance. It emerges from individual and collective efforts. Deep education is significantly related to an intention to understand deeply. Deep understanding characterizes deep learning (Akbar Hessami & Sillitoe, 1990). The focus is on what is signified, and the arguments proposed, with a linking process to prior information and to everyday experience (Morgan, 1993). Studies in higher education defined a deeper way of reading texts for learning (Marton and Säljö, 1976; Biggs, 1993; Entwistle, 2000). Research on learning styles deciphered deep differences in the way learners approach texts. Ramsden (1992) contrasted the Deep and Surface approaches. Surface learning focuses on forms and signs, while deep learning focuses on meaning. Deep learning links new knowledge to prior knowledge across various fields while surface learning memorizes unrelated parts. Surface learning associates facts and concepts without reflection while deep learning relates theoretical concepts to daily experience. The emphasis is external and fragmented for the surface learners as it relates to the demands of assessment, while it is internal and holistic for the deep learner.

Deep knowledge has different dimensions (Sandberg & Barnard, 1997): it is good to know multiple models and multiple viewpoints in the domain of study; to know about the relations between models and viewpoints; and in the reasoning procedures to solve problems; and the principles to solve new, unfamiliar issues. But there is much more. Nowadays educational psychology has a hard time imagining depth. The reason is that researchers probably want to avoid falling in the trap of deep psychology, which has been associated with psychoanalysis. It overinterpretive insights were either sexually oriented or based on mythic grounds that are in disagreement with current trends, based on the cognitive transformation of the behavioral stimulus-response into if-then procedural connections across mental models. Thus psychology should reinvent depth. Sociocultural, socioaffective, ecological and philosophical understandings allow deep learners to connect the dots and transcend the limited framework of cognitive psychology. Deep processing involves a re-conceptualizing of how reality is viewed (Bradford, 2001). In contrast, surface learning is task-oriented and is based upon extrinsic motivation. Surface learners store and reproduce information while deep learners attempt to grasp meaning with the aim of transforming the material provided (Säljö, 2003). Among the factors that contribute to a deep approach, the philosophy of learning has a tremendous importance. You learn best what you feel you need to know and what you learn is life-supporting and may enhance society and the world at large. Striving for knowledge is a major characteristic of deep learners (Atherton, 2005). It determines the way of perceiving new knowledge. Therefore theorizing plays a key role in a deep approach to learning. As well, deep learning defines a situation in which the teacher is not the only source of inspiration and knowledge (Rhem, 1995).

Deep Teaching

Deep learning is sustainable and requires a different style of teaching. Some researchers have started working on the transfer from a deep conception of learning towards a deep approach to teaching (Tochon & Hanson, 2003; Wilson Smith & Colby, 2007). This transfer defines sustainable education (Warburton, 2003). Indeed deep education requires self-sustainable learning. Hargreave & Fink (2006) define its dimensions: learning has to matter for deep understanding to happen; the deep learning system must last and spread across disciplinary domains; deep learning is energizing and doesn't burn out teachers, it doesn't harm the environment; quality is linked to variety rather than standardized forms of expression; deep teaching honors the past and develops wisdom for the future. These elements are key to active participation, capacity building and accountability within learning communities (Halbert & Kaser, 2006). Deep learning "engages students intellectually, socially, and emotionally" (…); it "goes beyond temporary gains in

achievement scores to create lasting, meaningful improvements in learning" (ibid, p. 8). Therefore, suggest Hargreaves and Fink, if standards are considered normative, they may be the enemies of sustainability. In deep education, standards define processes rather than products.

Deep teaching is learner-centered. It builds on the intrinsic motivation of the learner, authentic documents, and new information technologies when appropriate, conditional to integrating philosophical depth in their processing. Deep teaching is based on meaningfulness for the learner and is project-based. To teach life-meaningful contents to students, the teacher needs to know what is meaningful to them and discuss meaningfulness in life. Learning and teaching have to meet life-goals. The approach is contextualized and situated. Meanings are embodied in action. Deep education supports alternative conceptions of development such as subjective development. Indeed the concept of development in modern society can lead to a regression in human potential and values, as we are witnessing today.

No significant change can occur in education unless we confront the conception that supports the current shallow practices. Parroting information is not equivalent to acquiring knowledge and proficiency. Teachers who adopt shallow teaching cover the program, even though they realize that students do not understand and not much will remain of it. Low educational practices rest upon assumptions that Paul (1995, p.276-277) has refuted: "shallow" teachers assume that "students learn how to think when they know what to think". They believe "that knowledge can be given directly to students without their having to think it through for themselves". The storage metaphor prevails, as if the head was a computer they fill with data. Other assumptions of teachers that Paul characterizes as "shallow" include the beliefs that "quiet classes with little student talk are evidence of student learning" and "students gain significant knowledge without seeking or valuing it". Such teachers think that "material should be presented from the point of view of the one who knows". For them, program coverage is the most important, as they believe that "superficial learning can later be deepened". Shallow teachers share the assumptions on which shallow testing is based, that "students who correctly answer questions, provide definitions, and apply formulae demonstrate substantial understanding".

In contrast, those who would qualify as "deep teachers" understand and value higher order education. They hold a very different set of assumptions (Paul, 1995, p. 277):

- depth is more important than coverage: students learn what to think as they learn how to think;
- knowledge is gained through reflective engagement in action;
- education is the process of gathering, analyzing, synthesizing, applying, and assessing value-laden information;
- classes with student talk focused on life issues, is a better sign of learning than quiet classes focused on a passive acceptance of what the teacher says; students gain significant knowledge only when they value it;
- subject-matters should be related to experiences, life values, and viewpoints; students may give correct answers, memorize definitions and apply rules while not understanding the materials.
- shallow learning can be an obstacle to deep understanding.

Sustainable education is transdisciplinary (Nicolescu, 2008). Such a reflective approach characterizes transformative education in contrast to transmissive education. Transmissive education is instructive and instrumental; its information-focused training is oriented on products and based upon facts, small tasks and skills. In contrast, transformative education builds concepts and capacity: it is energized by intrinsic motivation and is grounded in ownership of action. Being process-oriented, it involves responsive world-view reframing (Sterling, 2001). It promotes individual and group work on actual, real-life situations and real-world problems. Deep teaching as well as deep learning involves reflective practices and theory-driven considerations. It integrates ethics, is politically active and aims toward social justice. It proposes non-obtrusive collaborations, working across cultural communities.

Deep Linguistics

Noam Chomsky (1965) has become famous for proposing that language and meaning processes are directed by a deep structure that generates surface expressions through a number of transformations. Lakoff (1973) mentioned that in a number of cases, Chomsky's grammar missed its goal for a 'deep reason': it didn't take into account that language is used by humans to communicate in a social context. Pragmatics was not part of the vision. Syntax is dependent on reasoning and the social and cultural assumptions of the speakers. Therefore depth should be understood as "rooted in the study of human thought and culture" (p. 3). It relates to applied semiotics rather than the abstraction of permanent and immovable universals with absolute, decontextualized rules of transformation. The clash between meaning and form only exists in dualistic ontology. Meaning and form are integrated in daily use within communicative situations.

The idea that there is depth in language that may cause transformations in behavioral rules has been transferred to psychotherapy. We have to question whether such dimensions of deep linguistics should—or not—be integrated into deep education. Deep linguistics or transformational linguistics uses language powerfully to change learners at the deepest level through suggestion and altered states of consciousness. It is being used by therapists to help patients modify their deepest passions, emotions and drives in a conversational way while they are unaware of it happening. Patients agree to the process and thus informed consent is ensured. Politicians use deep linguistics and suggestion to create mindless adherence. The topic deserves attention only insofar as it serves the autonomous purposes of the learner, and the instruments used are clearly described for what they are. Such motivational instruments must not be used unless the approach also includes critical thinking. Critical awareness will analyze logically and filter information. In this respect, the issue for the teacher and the educator is very similar to issues raised by taxonomies of socio-affective goals: as long as the learners are free to choose their own goals and are made aware of the approach, they can keep their autonomy. Critical distance is welcome in a deep approach as what is underlying it is the concept of empowerment. Teachers and educators must keep on questioning their own practices to assess in what way they are supporting or, to the contrary, restricting the freedom of the learner in the long run. The long term is what counts in the deep approach. This is not to say that anything could go in the short term if long term goals are reached. Educators must keep with the principle, dear to Gandhi, that the means used influence the attainment of the goal. The conversational suggestions induced by educators can only be ethical if it is genuine and helps consenting students to eliminate the inner constraints that would otherwise prevent successful learning, not in the terms of the teacher's goal but in terms of their own goals.

Deep Principles

In Education, one can have the feeling that one lacks specific materials for dealing with many problems; such as teaching for a specialty, internationalizing education, or being effective in foreign language teaching. Little by little, one comes to realize that the problems cannot be solved on a merely technical and disciplinary level exclusively. A holistic, human approach must be taken. Here are some principles for action that characterize deep education (Tochon & Hanson, 2003, p.31):

- Action is taken with the persons involved; they participate voluntarily and freely. The approach has an eco-cultural, philosophical dimension. It is based upon projects.
- The action is not focused on a theory or on the transmission of knowledge, but rather on resolving day-to-day problems.
- The approach is thematic and bottom-up: the themes are chosen by the participants as time goes on.
- One does not begin with the presupposition that any one environment is superior to any other: what is at issue is the relationship between people concerned with education.
- Lessons are organized on the principles of meaningful conversations (Bruner, 1990; Walsh, 1997), moderated by people with knowledge of the context. Conversations relate to real-life cases and are semi-structured around a theme.

- Participants are conducting reflective research on their own actions. The action includes regular formative evaluations intended to improve its relevance and better meet participants' needs.
- To achieve deep, lasting learning, students are engaged on many levels-emotional, physical, spiritual, and cognitive (McLeod, 1996).

For example, the taxonomy of Krathwohl, Bloom and Masia (1964) is one of the known classifications of affective goals for the purpose of instruction. It could guide some aspects of deep education as long as the learners are free to choose the instructional contents and themes within an ethical framework. This taxonomy is linked with the psychological principle of internalization that is, "the process whereby a person's affect toward an object passes from a general awareness level to a point where the affect is internalized and consistently guides … the person's behavior" (Seels & Glasgow, 1990, p. 28). There have been initiatives to create a deeper sense of what teaching should be. For Giuliano (2008), deep teaching takes learners on "a journey from recognition and responsibility to reassessment and the creation of profound change in one's daily life". It is based on critical thinking and "non-patriarchal approaches reasoning". The "learner is challenged to think and to understand diverse cultural, social, and intellectual perspectives and to perceive the natural world as an intimate and integral part of our lives". Here are other aspects of deep teaching:

a) It resolves the performance-competence dilemma and is transformational.
b) It is built on life grammars, crosscultural pragmatics, and cultural 'beams of meaning' (Tochon, 2002).
c) It implies a deep understanding of what it means to be a learner and take responsibility for one's learning.

Deep teaching implies "deep professionalism" (Ulrich, 2000, p. 18). It is characterized by

- Awareness of the judgments on which positions rely, limiting claims accordingly.
- Responsibility, enabling the professional to deal with the consequences that are imposed on third parties; when it comes to assessing boundary judgments; no one can claim a special advantage of competence over all others concerned.
- Ethical competence and self-questioning.
- Responsible citizenship, following one's conscience rather than group pressures toward conformity.
- Emancipating ordinary people from the situation of incompetence and dependency in which professional action frequently puts them.
- Clarification that what counts as knowledge is a question of what we want to count as knowledge.

Professional competence has to do with competent citizenship; it depends on it.

The Deep Turning

In this essay, sources from different fields helped establish a new concept for education, highlighted in the title of the article. This is not to say that 'depth' has the same characteristics in politics, economy, philosophy, ecology, sciences, and educational psychology. The interpretive frameworks may have differed in various disciplines. What is being proposed here is to consider the common ground that characterizes depth as a new field of investigation for education and curriculum theory. It is the philosophy that is crucial and will inform the new curricula. Here are a few principles that stimulate, support and explain the deep turning in Education. They are derived from Naess's principles (Devall & Sessions, 1985):

- The well-being and flourishing of life on Earth, both human and non-human, have value in themselves. Such values are independent of the usefulness of the non-human world for human purposes.
- Richness and diversity of life forms, languages and cultures contribute to the realization of these values and are also values in themselves.
- Humans have no right to reduce this richness and diversity except to satisfy vital needs.

- The flourishing of human life, life forms, languages and cultures is compatible with a voluntary, substantial and harmonious decrease of the human population for the purpose of preserving our limited resources. The flourishing of non-human life requires such a decrease. Voluntary power-down will help creating sustainable living conditions.
- Present human interference with the non-human world is excessive, and the situation is rapidly worsening and must be taken care of by international regulations, that should translate into educational policies and curricula.
- Policies must therefore be changed. These policies affect deep economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present. Peoples need to be educated to accomplish the expected result.
- The ideological change is mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There is a difference between big and great.
- Those who subscribe to this philosophy have a moral obligation directly or indirectly to work in the direction of implementing the necessary changes. The disciplines taught in schools must integrate these principles in their curricula and pedagogy.

Applying deep principles aims at raising the level of consciousness of peoples and bringing forth different kinds of governments. Humans are confronted with a choice that Korten (2006) described as, on one hand, the Unraveling with a collapsing environment, violent competition for limited resources, a dieback of the population with a takeover of those who remain by local warlords or, on the other hand, the Turning from imperialism to Earth community, a possibility if we move to a 'politics of consciousness' (p. 43). It consists in moving up from the *magical consciousness* of people living in dream-like state directed by emotional impulse. Moving out of self-referential and narcissic *imperial consciousness*, with its primitive sense of justice based on enforcement and retaliation, conforming to the will of authority figures. *Socializing consciousness* to share ethical rules of conduct in society, we can internalize cultural norms as well as a sense of community. A sense is developed that security depends upon mutual loyalty. Caring individuals realize what the group interests are and collaborate in this direction. *Cultural consciousness* then emerges, when the rationales of others can be appreciated in their difference, with the understanding that cultures are social constructs and represents different 'truths'. It constitutes the moral ground for cultural change. The highest expression of this quest for humanity would define *spiritual consciousness*, which "manifests the awakening to Creation as a complex, multidimensional, interconnected, continuously unfolding whole" (p.47). The transition from cultural consciousness to spirituality would come from the search for deeper, original meanings related to profound encounters with others, each meeting with otherness representing a thorough lesson that gradually increases the awareness that we are connected. Cultural consciousness as well as spiritual consciousness act in favor of a society that is more just, peaceful and mature.

There are some risks at using such heavily connotated wording as 'spiritual consciousness raising' in the context of education (Crossman, 2003). One risk is a return to dualistic stands proper to Platonism; another risk is the resurrection of such elevated educational ideals within obedience networks, which would be just at the opposite of the goal of the present demonstration. Speaking of mindfulness and depth—and meaning it—sound appropriate wording. The word 'depth' should be understood as a continuum rather than an opposition to what 'light' or 'surface' curricula may have been. The directions taken by many disciplines so far have been led by a superficial view of their responsibility towards the world at large and the planet, the humans and the various species who live on it. The deep approach implies a change in scientific ontology. Its integrative ontology does not split the subject from its objects. It takes into account the impacts of the development of objective results on the human subjects, as both subjects and objects are one with their ecosystem. Second, it implies that science and education must shift from a view that is in the main quantitative to creating a world in which quality prevails as evaluated on the scale of deep human values such as social justice, ecological respect, fair information and communication, truthfulness, care for others, intrinsically motivated effort towards improvement, non-interference unless requested. Krathwhol et al.'s (1964) taxonomy provides a valuable orientation if the learners are free of their choices. It reminds social actors (teacher may not always remember that they *are* social actors) that the character of the means determines the character of the results. This rule applies to

teaching as well: surface strategies to maintain extrinsic motivation in the learners do not do good in respect to the deeper goals of education.

References

Akbar Hessami, M., and Sillitoe, J. (1990) *Deep vs. Surface Teaching and Learning in Engineering and Applied Sciences*. Victoria University of Technology, Footscray.

Atherton, J. S. (2005). Learning and Teaching: Deep and Surface learning. UK. Retrieved on September 6, 2007 from http://www.learningandteaching.info/learning/deepsurf.htm

Beck, U. (2006). *Power in the global age*. Malden, MA: Polity Press.

Berliner, D., Senemoglu, N., Yildiz, G., Dogan, E., Celik, K., & Savas, B. (2007, August). Approaches to learning and study skills of Turkish and American students in colleges of education. Paper presented at the EARLI Conference. Budapest, Hungary, August 31st, 2007.

Berry, T. (1999). The great work: Our way into the future. Bell Tower, New York: Random House.

Biggs, J. (1993). What do inventories of students' learning process really measure? A theoretical review and clarification. *British Journal of Educational Psychology, 83*, 3-19.

Bradford, K. (2001). Deep and Surface Approaches to Learning and the Strategic Approach to Study in Higher Education; Based on Phenomenographic Research. Retrieved on September 6, 2007 from http://www.arasite.org/guestkb.htm

Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.

Chomsky, N. (1965). *Aspects of the Theory of Syntax.* Cambridge: The MIT Press.

Crossman, J. (2003). Secular Spiritual Development in Education from International and Global Perspectives. *Oxford Review of Education, 29*(4), 503-520.

Freitas (de), L., Morin, E., & Nicolescu, B. (1994). *Charter of Transdisciplinarity.* Adopted at the First World Congress of Trandisciplinarity, Convento da Arrábida, Portugal, November 2-6, 1994. Retrieved from: http://basarab.nicolescu.perso.sfr.fr/ciret/english/charten.htm

Devall, B., & Sessions, G. (1985). *Deep Ecology*. Salt Lake City, UT: Peregrine Smith.

Entwistle, N. (2000, November). *Promoting deep learning through teaching and assessment: conceptual frameworks and educational contexts.* Paper presented at TLRP Conference, Leicester, Great Britain.

Fisher, A. (2002). *Radical ecopsychology: Psychology in the service of life.* New York: SUNY Press.

Freire, P. (1970). *Pedagogy of the oppressed*. New York: Seabury Press.

French, H. (2000). Vanishing Borders: Protecting the Planet in the Age of Globalization. Available for download at: http://www.worldwatch.org/pubs/books/15/

Gare, A. (2000). The postmodernism of deep ecology, the deep ecology of postmodernism, and Grand Narratives. In Eric Katz, Andrew Light and David Rothenberg (Eds.), *Beneath the Surface: Critical Essays on Deep Ecology* (pp. 195-214). Cambridge, Massachusetts: MIT Press.

Gitlin, A. (2005). Inquiry, Imagination, and the search for a deep politic. *Educational Researcher, 34* (3), 15-24.

Giuliano, J. A. (2008). *Deep teaching.* Retrieved on January 15, 2008 from: http://drjackie.freeservers.com/deepteach%20workshop.html

Jacoby, K. (2003). Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation. Berkeley, CA: University of California Press.

Jardine, E. A. (2004). Narrative Inquiry into the Formative Aspects of Ecological Identity. Antigonish, Nova Scotia: St. Francis Xavier University.

Halbert, J., & Kaser, L. (2006). Deep Learning: Inquiring Communities of Practice. *Education Canada, 46*(3), 43-45.

Hargreaves, A., & Fink, D. (2006). *Sustainable leadership*. San Fancisco: Jossey Bass.

Katz, E., Light, A., & Rothenberg, D. (2000). *Beneath the Surface. Critical Essays in the Philosophy of Deep Ecology*. Cambridge, MA: MIT Press.

Kentel, J. A., & Karrow, D. (2007). Mystery and the Body: Provoking a Deep Ecology through the Situated Bodies of Teacher Candidates. *Complicity: An International Journal of Complexity and Education, 4*(1), 85-100.

Korten, D., C. (2006). *The great turning. From Empire to Earth community*. San Francisco: Berrett-Koehler, Kumarian.
Krathwohl, D., Bloom, B. & Masia, B. (1964). *Taxonomy of educational objectives. Handbook II: Affective Domain*. New York: McKay Company.
Lakoff, G. (1973). Deep Language. *The New York Review of Books, 20*(1), February 8, 1973. Retrieved on October 18, 2008 from nybooks.com/articles/9956
Latouche, S. (2005). *L'invention de l'économie* (*The Fabrication of Economy*). Paris: Albin Michel.
Macy, J. (1991). *World as lover, world as self.* Berkley, California: Paralax.
Marcuse, H. (1960). A note of the dialectic (Preface). *Reason and Revolution*. Boston: Beacon Press.
Marton, F., & Säljö, R. (1976). On qualitative differences in learning. I. Outcome and process. *British Journal of Educational* Psychology, 46, 4-11.
McKibben, B. (2007). *Deep economy. The wealth of communities and the durable future*. New York: Times Books, Henry Holt.
McLeod, A. (1996). Discovering and facilitating deep learning states. *The National Teaching and Learning Forum, 5*, 1-7.
Merchant, C. (1992). *Radical Ecology: The Search for a Livable World*. New York: Routledge.
Miyao, Y., Sagae, K., & Tsujii, J. (2007). Towards framework-independent evaluation of deep linguistic parsers. In Proceedings of GEAF, pages 238–258.
Morgan, A. (1993) Improving Your Students' Learning. London and Philadelphia: Kogan Page.
Morin, Edgar (1964). *Science avec conscience* (Science with Consciousness). Paris: Seuil.
Morin, E., & Kern, A. B. (1999). *Homeland Earth*. Cresskill, NJ: Hampton.
Naess, A. (1989). *Ecology, community and lifestyle.* New York: Cambridge University Press.
Nicolescu, Basarab (2005). *Towards Transdisciplinary Education and Learning.* Paper presented at the Metanexus Institute for the 'Science and Religion: Global Perspectives' Conference. Philadelphia, PA, June 4-8, 2005.
Nicolescu, B. (2008). *Transdisciplinarity: theory and practice.* Cresskill, NJ: Hampton Press.
O'Sullivan, E. (1999). *Transformative learning: Educational vision for the 21st century.* New York: University of Toronto Press.
Paul, R. (1995). The critical connection: Higher order thinking that unifies curriculum, instruction, and learning. In Jane Willsen & A. J. A. Binker (Eds), *Critical thinking: How to prepare students for a rapidly changing world* (pp. 276-277). Santa Rosa, CA: Foundation for Critical Thinking.
Ramsden, P. (1992). *Learning to teach in higher education.* New York: Routledge.
Rhem, J. (1995). Deep/surface approaches to learning: An introduction. *The National Teaching & Learning Forum, 5(*1), 1-4.
Roberts, J., & Roberts, K. (2008). Deep reading, cost-benefit, and the construction of meaning: enhancing reading comprehension and deep learning in sociology courses. *Teaching Sociology, 36*, 125-140.
Roszak, T. (2001). *The voice of the earth, an exploration of ecopsychology*. Grand Rapids, MI: Phanes Press.
Ryan, J., & Louie, K. (2007). False dichotomy? 'Western' and 'Confucian' concepts of scholarship and learning. *Educational Philosophy and Theory*, *39*(4), 404-417.
Säljö, R. (2003). *Laering i praksis – et sociokulturelt perspektiv (Learning and praxis: a sociocultural perspective).* Götenburg, Sweden: Hans Reitzels Forlag.
Salleh, A. (2000). In defense of deep ecology: An ecofeminist response to a liberal critique. In Eric Katz, Andrew Light and David Rothenberg (Eds.), *Beneath the Surface: Critical Essays on Deep Ecology* (pp. 107-121). Cambridge, Massachusetts: MIT Press.
Sandberg, J., & Barnard, Y. (1997). Deep learning is difficult. *Instructional Science, 25,* 15-36.
Seels, B., & Glasgow Z. (1990). *Exercises in instructional design*. Columbus OH: Merrill.
Sessions, G. (1993). Deep Ecology as Worldview. The Bucknell Review, 37.
Shaules, J. (2007). *Deep culture. The hidden challenges of global living*. Buffalo, NY: Multilingual Matters.
Sterling, S. (2001) Sustainable Education: re-visioning learning and change. *Schumacher Briefing No.6*. Dartington: Schumacher Society, Green Books.
Sternberg, R. J. (2007). *Wisdom, Intelligence, and Creativity Synthesized.* New York: Cambridge University Press.
Tochon, F. V. (2002). *Tropics of teaching.* Toronto: University of Toronto Press.

Tochon, F. V. (2010). A Deep Approach to Language Multimedia and Evaluation: For a more Colorful Future. Invited Keynote Speech. *Proceedings of the Fourteenth international conference of APAMALL and ROCMELIA* (pp.73-92). Kaohsiung, Taiwan: National Kaohsiung Normal University.

Tochon, F. V. (in press). Deep Education: Assigning a Moral Role to Academic Work. *Educaçao, Sociedade & Culturas*. University of Porto, Portugal.

Tochon, F. V. & Hanson, D. (2003). *The Deep Approach: World Language Teaching for Community Building*. Madison, WI: Atwood Publishing.

Thomashow, M. (1995). *Ecological Identity*. Cambridge, MA: MIT Press.

Ulrich, W. (2000). Reflective practice in the civil society: the contribution of critically systemic thinking. *Reflective Practice, 1*(2), 247-268.

Walsh, D. J. (1997). Educateurs et parents: un point de vue personnel (Educators and parents: a personal viewpoint). In F. V. Tochon (Ed.), *Eduquer avant l'école. L'intervention préscolaire en milieux défavorisés et pluriethniques* (*Educating before school: Early intervention in multiethnic, poverty settings*, pp.151-166). Montreal, Paris & Bruxelles: Montreal University Press and DeBoeck University.

Warburton, K. (2003). Deep learning and education for sustainability. *International Journal of Sustainability in Higher Education*, 4(1), 44-56.

Wilson Smith, T., & Colby, S. A. (2007). Teaching for Deep Learning. *The Clearing House, 80*(5), 205-210.

Ziegler, J. (2007). *L'Empire de la honte* (*The Empire of Shame*). Paris: Fayard.