Tattva, Vol. 1, No. 2, July-December 2009, pp. 1-22
ISSN 0975-332X | https://doi.org/10.12726/tjp.2.1

Tattva
JOURNAL OF PHILOSOPHY

EDUCATION FOR SUSTAINABLE DEVELOPMENT THROUGH LEARNING AS VALUING

Dr. Robert Regnier
University of Saskatchewan, Canada

1. Introduction

Bruce Morito author of *Thinking Ecologically* recommends that to overcome contradictions at the heart of notions of sustainable development sustainability needs to relate to "the development of the person toward attunement and respect" (Morito, 246). This paper takes up Morito's call for a process approach to understanding value in sustainable development by introducing A. N. Whitehead's process cosmology and by reviewing how this cosmology can provide a basis for understanding learning as valuing. The hope here is to advance a discourse on the foundations of education for sustainable development as self-development that supports social and ecological justice. Complexity and ambiguity associated with the challenges of building capacities for various constituencies to work together in emergent and contested circumstances is one of the primary problems faced by such educators. The work of United Nations Regional Centers of Expertise for Education for Sustainable Development is an example of a planetary initiative that can take up such an approach. Since its inauguration in 2005, the United Nations University Institute of Advanced Studies (UNU-AIS) has granted charters to more than sixty Regional Centers of Expertise (RCE) throughout the world. These centers

are mandated to support and advance education for sustainable development (EfSD) through formal, non-formal, and informal networks, universities, technical institutes, school systems and in non-government and community based organizations. The proposal for advancing learning as valuing may be of assistance to those associated with these centers and to others involved in developing moral imagination and courage to advance education for sustainable development.

This paper, therefore, recommends that education for sustainable development be constructed on a notion of learning as valuing based upon the idea of valuing as interpreted from Whitehead's understanding of the actualization of actual occasion or events developed in his cosmology. It presents sustainable development as processes of intrinsic subjective and inter-subjective learner self-emergence through wisdom, moral imagination and courage in response to the problems of complexity and ambiguity. To begin, this work reviews Bruce Morito's call for a process ontology approach to values and valuing and introduces Morito's concerns about the failures of sustainable development; and it introduces Alfred North Whitehead's process cosmology as a cosmology of valuing that takes up Morito's call. This paper then appraises United Nations initiatives to establish Regional Centers of Expertise on Education for Sustainable Development to support educators' efforts to sustain consideration and development of effective educational philosophies, policies and practices; and presents complexity and ambiguity as central challenges related to planning and undertaking education for sustainable development initiatives. Moral imagination is proposed subsequently as the basis for a more adequate wisdom and to develop courage in response to the challenges of complexity and ambiguity. To explicate the bases of learning as valuing that develops moral imagination, this work then proceeds to review Whitehead's theory of education as it relates to his understanding of how wisdom adds value to the immediacies of life through the rhythmic cycles of learning. Finally, this work concludes by demonstrating how Whitehead's notions of valuation and evaluation explicate the idea of learning as valuing.

2. Sustainable Development in an Ecologically Grounded Ontology

In *Thinking Ecologically,* Bruce Morito recommends recognizing human valuing and value conferring activity as part of an "emerging holistic ecological scheme" not as "detached and objective observers" that liberal theory suggests (108). This valuing arises within and is dependent upon integrity of "the complex and interdependent processes that form ecosystems" (108). In these systems, "[t]he whole determines, in part, our constitution and purposiveness as valuing beings. What and why we value, therefore, also are determined in part, by the whole"

(108). Our human interests and moral agency are the products of "evolutionary processes, which are fine tuned to support our existence" (108). "Nothing about our constitutions, including our valuing and thinking functions, exists or operates independently of our evolutionary history and ecosystems processes" (109). Because of the way that human beings have evolved they "can not choose or agree to be interested in something for which they are not suited" (109). In relation to these observations, Morito states that liberal value theory needs to be inverted from the notion that the environment is valueless and humans create value through work and through taking an interest to recognizing that "[h]uman valuational activity is but one mode of a more comprehensive valuational activity" (111). In this framework, "most of our valuational activity has already formed" (110) before it reaches the rational stage.

> These values are often deeply hidden, motivating factors in thought and action; they operate independent of any explicit acknowledgement, deliberate act or work to reproduce value (111). Valuational processes precede and underlie the emergence of rational interest-driven behavior; their function is to orient the rational agent toward taking an interest in particular elements of the environment' (111-112).

Because Morito sees valuational activities as "judgments, or quasi-judgments, that an organism makes in determining distinctions between suitable and unsuitable activities, good and bad situations" (112), he explicitly calls for a theory of "valuing rather than of values' (112). He states that "analysis of values presupposes a process ontology, that is to say, values are processes not objects" (112). He recommends process ontology as an approach which understands the world in terms of processes rather than as substance. In such an ontology, humans are loci of valuing not the repositories of value. This view stands in direct distinction to notions of the essential intrinsic value in which entities have value in them as if values were deposited inside the repository of the individual entity separate from the external world and separate and distinct from other entities.

In his discussion about sustainable development, conservation and sustainability policy evaluation, Morito criticizes the notions of sustainable development which "exclude perspectives and voices, resulting in injustice and cooptation" (Morito, 211); and he is critical of how "superficial democratic processes promote the perception of fairness and justice for the dominant group, while suppressing it for the dominated groups" (238). Nevertheless, he does offer some hope for the possibility of recognizing the values and needs of those oppressed by sustainable development and other equivalent regimes and for supporting emancipatory inclinations offered by organizations such as the United Nations.

> To understand the sorts of values recognized by the United Nations, we need to develop appropriate and explicit procedures to account for such values. Otherwise, they will be distorted or misrepresented. This procedure involves understanding the different ways of knowing and the context, according to which valuations acquire meaning (Morito, 228).

Furthermore, Morito states that

> "[...] sustainability involves the development of the dialectical opposite of a more global ethic. Sustainability demands an ethic that exercises the human beings capacity to know, analyze and value in ways that are inclusive of other perspectives and evaluations. We see at its core a need for freedom (autonomy) (238).

To provide for sustainable development which is socially and ecologically just, he calls for values analysis which "involves not only analysis of marginalized peoples' values, but an analysis of the presuppositions of the system already in place and the matter in which it forces reinterpretation of marginalized values" (243).

In Whitehead's cosmology, the purpose of the cosmos is to create value in a universe constituted by ongoing actual occasions or events. His work provides a process ontology that Bruce Morito is looking for in *Thinking Ecologically*. Bruce Morito sees that "[a]ll valuations and valuers, being consequences of evolutionary and ecological processes nested within different levels of organization of valuation activity, are parts of valuational networks such that it becomes impossible to separate the valuer from this network in any radical way (*Morito*, 111). "[V]alues are often deeply hidden, motivating factors in thought and action ... [which] "ultimately derive from evolutionary and ecological relationships" (*Thinking* 110-111). Valuing precedes rational interest-driven behavior and orients agents toward taking an interest in particular elements constituting the environment. Valuational activity, therefore, is not fundamentally the result of rational deliberation (*Morito*, 111-112) but occurs as ecological processes (*Morito*, 112). Whitehead's cosmology concurs with Morito's call for a process ontology and agrees with the criticism that the environment is valueless, that there exists a fundamental separateness between the valuing agent and the object valued, that value-conferring activity is one way relationship from rational humans to the environment, and that nature is best understood as having objective essentialist intrinsic value.

To engage in developments that sustain local and global environments and to support ecologically and socially just initiatives, Morito's call is to move to process-based ontologies that recognize if not foster capacities to assess value. Alfred North Whitehead's cosmology provides an opportunity to take up Morito's concerns

and suggestions for a process approach to sustainable development; and this paper seeks to provide a foundation for sustainable development education based in the notion of learning as valuing. At the very heart of A. N. Whitehead's process cosmology is a pre-occupation with existence as "value-existence" (Jones in Whitehead, 1996, xxv) and with the actualization of existence as value in the world. He locates the actualization of value in a world of primordial and consequential possibilities in which value is a function of continuous self-creative emergence. This self-emergence occurs as events which he refers to as actual occasions of encounter, adjustment and resolution that selectively prehends past values and current value possibilities and concresces them into definitive value patterns of relation that become available into the future. The self-creation of value which projects into the future Whitehead refers to as subject-superject. This reference differentiates his notion of subject and subjective emergence from the notion of subject-object relations dominant in substance ontologies where what is really real exists objectively and is constituted by inert matter. In this process cosmology, events are constituted by and intrinsically related to other events to constitute space and time. This is unlike the external relations of separate and distinct entities in absolute space and time.

Whitehead's cosmology offers an analysis from the perspective of process philosophy. In contrast to understanding the world within the dominant 17th century scientific materialist worldview in which reality is fundamentally regarded as constituted by inert unchanging atoms of substance called matter, the world within A. N. Whitehead's ontology is constituted by processes of continuous emergence or actualization through which what is selected from the past is non-cognitively apprehended with selected value possibilities into a definitive actualization or concrescence. When that moment of actualization perishes the actualization becomes objectively immortal and consequently available to the future for subsequent creative occurrences.

Within this process philosophy, all events or occurrences are constituted by other events. No entity is independent of the events through which it is constituted and related. All entities are, therefore, in processes of inter-relation with other entities and consequently related to the whole. No entities exist as independent isolated realities. All entities or actualizing occasions not only offer a perspective on the world, they "ontologically" constitute a perspective "of" the world. The fundamental assumption in this view is that the world was not created ex -nihilo by an external creator but is in constant processes of self-creation and recreation. Within this view, intrinsic rather than external causes move entities to be what they can possibly become.

The way to creative emergence is by selecting the most ideal influences or capacities presented from the past, selecting the most ideal possibilities for the future, and

harmonizing them in novel forms that address current limitations or limit situations to create new intense syntheses. Creativity is subjective self-emergent processes of valuing which moves from less to more intense and harmonious worlds. Education is the development of capacities to select the most ideal inheritances from the past in combination with new ideal possibilities to actualize in each current circumstance. Where morality is "the control of process so as to maximize importance" (*MT* 19), and where politics is morality in the public sphere, this learning as valuing is moral and political as process that maximizes importance and education that maximizes environmental, social and economic value for individuals and for the common.

3. United Nations Mandate for Sustainable Development Education

> Were development to be conceived as the development of the person toward attunement and respect, sustainable development might not be an offense but a comprehensive measure of sustainability. It could help us work toward new forms of autonomous community development, empowering communities to develop low impact technologies and modes of production that would protect rather than undermine the many valuational activities of all loci (Morito, 246).

One example of an emerging planetary network of organizations specifically dedicated to advancing education for sustainable development is the United Nations Regional Center of Expertise for Education for Sustainable Development initiative through which more than sixty voluntary centers were chartered between 2005 and May of 2009 a number to reach eighty by 2010[1]. Morito's proposal for sustainable

---

Names and Locations of *RCE's* ***In Africa:*** Cairo, Egypt; Ghana; Greater Mbarara, Uganda; Greater Nairobi, Kenya; Kano, Nigeria; KwaZulu Natal, South Africa; Lagos, Nigeria; Makana and Rural Eastern Cape, South Africa; Maputo, Mozambique; Swaziland; Zomba, Malawi. ***In the Asia-Pacific Region:*** Anji, China; Beijing, China; Bogor, Indonesia; Cebu, Philippines; Cha-am, Thailand; Chubu, Japan; Greater Sendai, Japan; Guwahati, India; Hyogo-Kobe, Japan; Incheon, Korea; Kitakyushu, Japan; Kodagu, India; Kyrgyzstan; Lucknow, India; Okayama, Japan; Pacific Island Countries; Penang, Malaysia; Pune, India; Tongyeong, Korea, Trang, Thailand; Yogyakarta, Indonesia; and Yokohama, Japan. ***In Europe and the Middle East:*** Barcelona, Spain; Creias-Oeste, Portugal; East Midlands, UK; Graz-Styria, Austria;, Hamburg, Germany; Ireland; Munich, Germany; North East, UK; Nuremberg, Germany; Rhine-Meuse region; Samara, Russia; Skane, Sweden; Southern North Sea Belgium, Netherlands, France; and Severn, UK; Yorkshire and Humberside, UK. ***In South America and the Caribbean:*** Curitiba-Parana, Brazil. ***In North and Central America*** Grand Rapids, USA, Greater North Central Texas, USA, Greater Sudbury, Canada, Montreal, Canada, Saskatchewan, Canada, Toronto, Canada, and Western Jalisco, Mexico. For information on each of these centers go to: http://www.ias.unu.edu/sub_page.aspx?catID=108&ddlID=661

development maybe particularly relevant and applicable in light of the United Nations mandate for education for sustainable development through the work of *United Nations Educational, Scientific and Cultural Organization, its* establishment of the Decade of Education for Sustainable Development (DESD) 2005-2014, and the work of United Nations University Institute of Advanced Studies (UNU-IAS) to develop Regional Centers of Expertise (RCE). UNU-IAS was established in 1996 in Tokyo Japan to advance knowledge and promote learning for policy-making to meet the challenges of sustainable development. Its major activities include a bio-diplomacy initiative, an ecosystem and people program, an education for sustainable development program, a science policy for sustainable development program, a sustainable development governance program and other special programs.

In 2003, United Nations University initiated a program to establish regional centers of expertise throughout the world as a network of formal, non-formal and informal education and learning-related institutions intended to support and deliver education for sustainable development at regional and local levels. This system encourages discourses on this education responsive to local and regional experiences, develops relevant project possibilities, and defines program options under the guidance of formal and non-formal educators. Procedures to develop the UN framework other than the basic requirements are developed at international RCE meetings. Following the first and second conferences in Yokohama, Japan (2006) and Penang, Malaysia (2007), more than 130 RCE participants discussed development of a global RCE network, networking processes, and inter-RCE relations in Barcelona, Spain (2008) and in Montréal, Canada (2009). Conference working groups discussed partnerships, management, promotion, activities and fundraising with plenary discussions on plans of action including evaluation and communication. Other groups deliberated on thematic areas of sustainable production and consumption, biodiversity, e-learning, health, youth and schooling. What has become apparent through these meetings is that each local region of the world has its own unique experiences associated with environmental, social, and economic sustainability that are specific to geography, social and political structure, historical events, influences of globalization, ethnicity, culture etc. Each area has approaches to and frameworks for education and to sustainable development developed through their own historical trajectories. Each has complex extrinsic relations to the rest of the world though which they compare and contrast their own intrinsic developments. Each area proposes and is open to the emergence of various possibilities and relations for developing education for sustainable development; and each has its own particular ways of defining and adjudicating how it intends to proceed and actually does proceed in its educational initiatives.

The RCE initiative is part of the Decade of Education for Sustainable Development (DESD) proposed by the Japanese Government and non-government organizations at the Earth Summit on Sustainable development meeting in Johannesburg the 2002, adopted by the United Nations General Assembly in December 2002 with an international implementation scheme approved for September 2005 (United Nations Concept Paper).

> The overall goal of the DESD is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behavior that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations (United Nations Concept Paper).

Specific Decade of Education for Sustainable Development objectives are to facilitate EfSD networking, linkages, exchange and interaction among stakeholders; increase quality of EfSD teaching and learning; help countries make progress towards the millennium development goals through EfSD; and provide opportunities to incorporate ESD into education reform efforts (United Nations Decade). Within UNESCO's major thrusts to improve access to quality basic education; reorient existing education programs; develop public understanding and awareness, and provide training, RCEs are to address environmental, socio-cultural and economic challenges simultaneously; promote environmental stewardship, social justice, improvement of the quality of life, and all-life learning; and ensure ESD addresses people regardless their gender, age or social status (United Nations University (UNU), Regional Centers of Expertise, Concept Paper). The sentiment of DESD was confirmed through the Ahmadabad Declaration made January 20th, 2005, "by more than 800 learners, thinkers and practitioners from over 40 countries, engaged in education for sustainable development, at the *Education for a Sustainable Future* conference held in Ahmadabad, India." The following part of the declaration states that how these participants interpreted DESD.

> We firmly believe that a key to sustainable development is the empowerment of all people, according to the principles of equity and social justice, and that a key to such empowerment is action-oriented education. ESD implies a shift from viewing education as a delivery mechanism, to the recognition that we are all learners as well as teachers. ESD must happen in villages and cities, schools and universities, corporate offices and assembly lines, and in the offices of ministers and civil servants. All must struggle with how to live and work in a way that protects the environment, advances social justice, and promotes economic fairness for present and future generations (Ahmadabad Declaration).

The United Nations website provides a review of how each RCE is governed through its own leadership which facilitates *collaboration with* all levels of formal, non-formal and informal education including *support for* research to transform education and training systems. Each builds frameworks to share information and experiences with partners, creates knowledge with and for sustainable development participants, and promotes re-orientation of education towards sustainable development, access to quality education, designing training programs, and supporting public awareness of education for sustainable development.

To be accepted as a centre applicants need to demonstrate collaboration of higher education institutions, schools and school systems and other non-formal stakeholders; a clear specific vision that includes economic, social and environmental considerations in proposing projects for addressing regional challenges; governance capability supported by key institutions and financial stability with a management structure that provides monitoring and evaluation mechanisms; mobilization processes to develop itself; and on-going and planned activities. XXX Applications sent to the RCE Global Service Centre at the United Nations University (UNU) are forwarded to the Ubuntu Committee of Peers for assessment to accept or not forwarded to UNU. The signatory representatives of the Ubuntu Declaration responsible for vetting applications are *United Nations University, United Nations Educational, Scientific and Cultural Organization, African Academy of Science, International Council for Science, International Association of Universities, Copernicus-Campus, Global Higher Education for Sustainability Partnership, Science Council of Asia, Third World Academy of Sciences, University Leaders for a Sustainable Future, and World Federation of Engineering Organizations.*

The United Nations defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations Principle 21) a definition which implies improving the quality of life while living within the carrying capacity of supporting ecosystems; and the United Nations Institute for Advanced Studies defines education for sustainable development as education that seeks to "empower people to assume responsibility for creating and enjoying a sustainable future," "to empower citizens to act for positive environmental and social change," and to bring "new motivation to learning ... to develop and evaluate alternative visions of a sustainable future and to work to collectively fulfil these visions" (United Nations Principle 21).

Education for sustainable development is to engage people to transform their individual and organizational activities in ways that promote sustainable livelihoods and sustainable ways of living. It includes attentiveness to social and economic issues of the quality of human life within natural environments. It is not to be confused with education for sustainability which does not necessarily include social

and economic development. Education for sustainable development refers to relationships between education and development that mutually improve the quality of human life and natural habitants through definitive social and economic construction and reconstruction projects and initiatives. But education for sustainable development is not to be considered as sustaining development education where development is identified with dominant forms of exploitative ideologies including the globalization of consumerism through state or corporate capitalism. At the very least, EfSD should enhance the capacity for critical thinking: "[t]o understand complexity, [t]o consider values and norms, and [t]o contribute in practical ways to sustainable development (Fadeeva).

The United Nations regional center initiative provides a framework for supporting education for sustainable development that has many advantages. First, it provides dedicated fora throughout the world for bringing together regional participants dedicated to advancing education for sustainable development. These fora address various levels of regional need throughout the world for an infrastructure dedicated to EfSD. Second, these centers not only provide for development of frameworks which insist on acknowledging and addressing the regional experience, it provides forums that can offer frameworks of analyses through which to build increasingly comprehensive and compelling perspectives that foster initiatives to penetrate regional limit situations and allow the emergence of more substantive approaches to EfSD. Third, the development of these regional centers offers new prospects for inter-relationships and resources on a global scale through networking and mutual support initiatives. Fourth, these centers facilitate the development of regional research and initiatives on a scale of cooperation and mutual support not before available.

4. Challenges to Education for Sustainable Development

> Unfortunately, in an environmental context where decision making is complex, contested, contextual and emergent and involves many different facets, simplistic assumptions are not realistic and can even be alienating as one group of, supposedly more informed people, seek to influence others. Going beyond conventional (the usual) assumptions and expectations is a challenging task but it is clearly necessary if meaningful social change in relation to environmental practices is to be achieved." (Jim Taylor, 11)

In "Education for Sustainable Development: Perpetuating myths or bringing about meaningful change?" Taylor argues that environment and sustainability issues are

associated with "complex ...interactions between the biophysical, political, social, technological, economic and aesthetic dimensions ... and the different ways that we have of making sense of this complexity that leads to different and often highly contested understandings of environmental issues and what sustainable development really means. These understandings also change over time." (Taylor) Differing understandings and decision making processes in the work of education for sustainable development are based on "mistaken beliefs," "lack of knowledge or understanding," "different interests," and "cultural perspectives" (Taylor, 8). To make this education effective, the "complex, contested, contextual and emergent character" of sustainable development needs to be recognized. Education for sustainable development needs to begin from assumptions that recognize these complexities in order to adequately formulate the purposes, goals, objectives, programming structures, pedagogies, curriculum, and evaluation strategies of both formal and informal education.

Jim Taylor recommends the maturity of "self control" where "people come to realize what to do because it is the choice they choose to make" (Taylor, 5).

> We should always seek to enable people to develop and shape the principles of 'self control' so that their ability to reason strengthens. But to achieve this one needs to understand the social contexts in which people live and work, their motivating reasons and goals, and engage with these so that one might come to a better understanding of living and acting in the world. In this context 'self control' is a goal of life and an important goal of environmental education and education for sustainable development (Taylor, 6).

He sees self-control as more effective than other processes such as fear, external rewards, the compulsion of laws or behavioral conditioning or merely attempting to make people aware through raising awareness, attitude change, or behavior modification each of which is ineffective in its own way. Self-control requires and assumes the intrinsic emergence of human capacities to focus on and attend to their situated reality and to develop capacity to comprehend and move beyond the limitations that restrict them. For Taylor, the core of sustainability is to be found in the emergence of self-control. However, learners may be limited in their moral imagination that allows them to achieve self-control. Sharon Daloz Parks found the Harvard business students she studied did not have the imagination to address the complexity of the global economy and ecology. "They do not recognize the interdependent complexity that, when seriously considered, confounds their too narrowly framed interpersonal ethical resolve" (Daloz Parks, 190). She found that students had narrow ethical commitments including individually oriented values which were socially inoffensive and not capable of articulating an ethical commitment in the public imagination.

Complexity and ambiguity become difficult to address when learning is reduced to the equivalent of rote acquisition of information, theories, facts, formulas, and even objectified values as learnings especially in complex, contested, emergent and contextual conditions. Reductionism in educational processes fails to see learning as emergent processes of discernment and valuation which recognize the complexity of situatedness and ambiguities of negotiating contrasting differences and diversities. Learning to address complexity and ambiguity requires constant assessment of qualities and characteristics that allow both for expanding breadth of scope and for grasping nuanced and subtle distinctions which make it possible to maneuver to penetrate limit situations. In spite of criticisms of technical rational approaches to teaching and learning, transmission approaches continue to dominate the educational processes. Whitehead sees this dominance as associated with materialist belief in the detailed order of nature and in empiricist method, for example, which insists upon study of fact by experiment and inductive reasoning. Induction abstracts learning into limited empirically identifiable and discrete bits that can be quantified, measured, deposited, and banked but does not capture the self –emergence of becoming, moving from what has been into what "could" be and what "should" be. Instead of affording full aesthetic appreciation of the complexity and ambiguity of occasions, including learning occasions, empirical induction pre-empts to classify and measure. Within this empiricist measure, such learning is conceptualized as occurring with the property of simple location said to be *here* in timespace, not differentiated by transition of emergence. "[W]ithout transition, since the temporal transition is the succession of instants" (Whitehead, 63), learnings exist without intrinsic duration. In the materialist model, complexity is reduced to accumulation and sorting, and ambiguity is reduced to simplification through exclusion and inclusion of what can be accumulated and organized or transferred and transmitted. This model abandons the notion that education is constituted through subjective intrinsic self-emergence from less to more self-control, from less to more discernment of ambiguity, from less to more penetration of complexity.

5. Moral Imagination and Courage

We stand on a "new ethical frontier ... where ethical norms of the past are called under review" to provide "a more adequate wisdom" through which to engage in a multiplicity of "new relationships and conflicting values" (Daloz –Parks, 178). To support development of persons and communities with "connective, independent imagination by which they can creatively address the intensifying complexity of an interdependent global economy and ecology" (Daloz-Parks, 190), Sharon Daloz-Parks argues for education that offers "initiation into complexity and ambiguity"

through which "the moral imagination can be strengthened and enlarged" (Daloz Parks, 190). She argues for this imagination because "[w]e human beings...act in a manner consistent with how we make meaning, how we think things are really, what we perceive to be ultimately true and dependable in the most comprehensive dimensions we can conceive – and we make meaning by means of the imagination" (183). Imagination makes it possible to engage and consider perspectives beyond our immediate scope of experience.

> Imagination is not to be divorced from the facts: it is a way of illuminating the facts. It works by eliciting general principles which apply to the facts, as they exist, and then by intellectual survey of alternative possibilities which are consistent with those principles. It enables men to construct an intellectual vision of a new world, and it preserves the zest of life by the suggestion of satisfying purposes. (Whitehead, 1929/1957, 93)

Imagination allows one to see what is not immediately evident, what could be and should be, and to conjure up interpretations of what has been. Imagination allows learners to see facts in larger contexts that are not immediately evident and to see realities in terms of the possibilities that they could be. To imagine reality in terms of its possibilities is not merely to see them as fantasy but in terms of unapparent relatedness, unrealized connections and potential value or worthwhileness. It visualizes the achievement values of what has been and proposes value possibilities of what could be better or worse.

Garrison explicates a notion of moral perception in terms of various aspects of imagination in relation to students.

> Moral perception is the capacity to comprehend particular contexts and the uniqueness of persons. It is especially important when we need to grasp mutable, indeterminate, and vague situations in which rules and clear criteria for their application are difficult to determine. It also shows us to see not just who our students are here and now, but to see into the future and imagine their best possibilities. Moral perception allows us to see the unique needs, desires and interests hidden in the words and deeds. (Garrison, 170)

Garrison explains how moral perception is constituted in the "three interrelated functions" (175) of empathetic imagination, imaginative envisioning, and imaginative moral reasoning. Empathetic imagination grasps "possibilities that lie concealed within the current situation" (175) and to "perceive the needs, cares, concerns, and interests" of others (175) and by extension the

natural environment and the social and economic conditions in which people live. This imagination makes it possible to differentiate and contrast continuums and gradations of perceptions, experiences, possibilities, determinations, and decisions in all areas of endeavor. Education for sustainable development requires development of forms of sympathetic intelligence that recognize fragile and subtle contrasts among entities, persons and events which acknowledge their worth and significance and prevent collapse into premature contradictions in order to support possible emergence of new forms of relationship. This sustaining of contrasts is most important in "complex, contested, contextual and emergent situations."

Imaginative envisioning explores "possible alternatives beyond the knowledge of the actual" (176). Education for sustainable development requires the creation of new hypotheses, theories and propositions about what is possible in ways that differentiate variations and gradations of possibility and in light of specific circumstances because "[w]ithout alternatives freedom is impossible, because there can be no choice, much less intelligent choice" (176). "Imaginative moral reasoning is vicarious deliberation" (177). This is the third aspect of Garrison's notion of moral perception. Deliberation allows conscious discernment of issues without being in and experiencing the consequences of actual situations. Each of these three aspects of imagination makes moral visioning for sustainable development more possible.

Where morality is viewed as "control of process so as to maximize importance" (*MT*, 19), educators for sustainable development make it possible for learners to learn to maximize their selection of what is most important by assessing the most relevant and appropriate value options for particular circumstances. These educators focus on what is of most importance and exclude the irrelevant, meaningless, or valueless. The morally imaginative educators empathize with the learning interests and needs of learners in their particular contexts and situations, to help them envision their learning possibilities, and discern the best of those possibilities to have the courage to address the greatest good.

Developing moral imagination calls for recognizing that the purpose of education for sustainable development is not merely knowledge but rather wisdom, practical wisdom to engage in complexity and to work with ambiguity. The practical wisdom of moral imagination consists in finding ways to move beyond the limitations that we fear the most and to act courageously. "Courage happens when one is able to move beyond fear because one can see a more adequate and compelling truth than the truth of the danger and can act, therefore, in response to the truth beyond the fear" (Sharon Daloz Parks, 191). Sharon Daloz-Parks outlines three conditions for moral courage: (i) "access to

an articulate, compelling viable vision of a positive future that recognizes complexity and ambiguity; (ii) must resonate with [one's] ...own felt sense for dissonance and yearning;' and (iii) [T]here must not only be an individual sense of choice, but more, the conviction of a - 'we.' [W]e must have the confidence that if we move into new forms of meaning and ethical practice we will not be alone; there will be a new sociality. Moral courage is not only a matter of images at the hearts core; it is also a matter of the company we keep" (Parks, 191)

Education for sustainable development that is to achieve social and ecological justice must not only be responsive to the complexities and ambiguities of context and situation, it must also provide the means to penetrate and move beyond those limitations by imagining and making decisions on the moral justification and feasibility of possibilities that reside at the hearts core and allow one to move beyond the fear of danger to build a new sociality. This is the task for the United Nations program of regional centers of expertise to address.

6. Education for Sustainable Development through Rhythmic Cycles of Learning

Whitehead proposed that the purpose of education was wisdom through "the guidance of the individual towards a comprehension of the art of life" (Whitehead, 1929/1957, 39). He saw that the wisdom of comprehending the art of life was attained through "active utilization of well understood principles" (37) in relation to the broadest of possibilities in one's environment. Wisdom was achieved through mastery of knowledge "handled to transform every phase of immediate experience" (32) and "adds value to bare experience" (32). For Whitehead, therefore, wisdom was acquired not merely through the formation of principles nor the contemplation of principles but rather the "utilization" of principles. This attention to utilization makes clear that education for sustainable development does not occur merely through the accumulation of knowledge nor through the accumulation of generalizations, abstractions and principles. In fact, Whitehead was adamant that presenting education as the accumulation of knowledge was seriously detrimental. "Education with inert ideas is not only useless: it is above all things, harmful – *Corruptio optimi, pessism*" (2). It leads to "mental dry rot," for "ideas which are not utilized are positively harmful" (3).

Adding value to life means acquiring the wisdom of "utilization." For Whitehead, utilization might be interpreted as engaging in a non-cognitive and cognitive praxis that discriminates between value possibilities most relevant for a circumstance then assessing how to incorporate the selected most worthwhile value possibilities into

the complexities and ambiguities of that circumstance. Wisdom is constituted by the valuation of the most worthwhile of possibilities and also by the drawing out of what is most worthwhile from those possibilities into problematic, contested and emergent processes.

Whitehead's wisdom is not about just any utilization. It is about utilizing "well understood principles." Education processes can be designed to cover ground rather than to "penetrate" issues and to develop substantive perspectives. This type of approach is rampant in those education for sustainable development occasions including classes, courses, conferences, workshops and programs that fail to develop learning structures, visions and pedagogies to support and sustain learner engagement. These processes can be deficient in various ways: when they fail to allow learners and communities of learners the space to develop direct appreciation and expression of the distinctive urgency of their own initial feelings and aims from which their investigations arise and are driven; fail to provide learners opportunities to grow in the conceptualizations that unify what they regard as urgent or important in those experiences; fail to develop prospects for learners to contrast their experiences, feelings and conceptualizations with others to draw upon variations of qualities and categories of options through which to reinterpret and enhance their own directions; fail to provide space to propose new possibilities for what could be ways of addressing issues and problems; and fail to arrange occasions to ensure deliberation on definitive issues about what "ought" to be enacted. Learning occasions need to be designed and organized to ensure the progressive emergence of a comprehensive understanding that moves from initial experience and interest to full consideration and emergence of definitive action.

For Whitehead, there are three phases to learning: romance, precision and generalization. Through these phases, freedom and self discipline emerge. Romance is the "discursive activity amid a welter of ideas and experience ... dominated by wonder;" a "process of discovery" which includes "curious thoughts," "devising new experiences," "shaping questions," and "seeking for answers." (Whitehead, 1929/1957, 32) This romance is essential to learning because it provides for freedom, the basis of self-determination through the lure of the possible, the lure of unactualized potential and the lure of the ideal beyond what is. It is the constant call, if you like, to the adventure of the fullness of life, to sustain one's own ability to flourish. Without freedom, there can be no development of a compelling intrinsic relationship of interest or worth between the learner and what is learned. There can be no sustainable learning development.

Wisdom requires mastery and romance brings each person to mastery through the luring selectivity of wonder, curiosity, interest and the assessment of worth. Romance is the basis of valuing which brings learners to and through mastery to selective

definitive completion because romance responds to the lure of the most satisfying and fulfilling possibilities. The enlightenment of wisdom requires the transformation of precise selected knowledge so that it is useable or generalizable the same way that digestion of food becomes transformed by the human body to give it energy and direction. The impulse of romance draws and lures learners through the challenges of each new aspect of what is to be learned, and the lure of the worth or final satisfaction or fulfillment is the romance of completion. For Whitehead, to foster romance that leads to the greatest possible creative advance teachers can select environments and adapt to specific needs and stages of growth. The romantic lures in education for sustainable development can include visions of equitable and just economic systems, projects that respect and recreate life giving eco-systems, and development of the "respect and attunement" of human cultures and social relations that appreciate the distinctiveness of place.

Precision for Whitehead means "getting to know fundamental details and main exact generalizations," the "acquirement of the best practice," "mastering technique" "learning right ways and wrong ways" (Whitehead 1929/1957, 34). Valuing in this phase consists of discerning selection that progressively concentrates and focuses by selecting what must be attended to for the whole to be mastered. Because this phase is driven by the continuous romance of discerning assessment of what is important and interesting, perseverance for completion and mastery is possible and can be filled with determination and excitement. However, in this stage, freedom transforms into discipline, self-discipline, a discipline that can be driven by desire and interest, duty or worship, excitement or fear where practices are improved and knowledge comprehended. "The responsibility of the teacher at this stage is immense" (35) for it is the teacher who must provide the supports, design, and framework that allows students to go about their learning in detail where "tasks correspond to the natural cravings," (35) and learners "powers are at full stretch" (35) and not killed or rendered ineffective by unnecessary demands or by meaningless acquisition.

Education for sustainable development processes within these assumptions can be most beneficial when designed to ensure that they carry learners from the romance to the precision stage. The danger is to make demands on precision before the romance stage, or to design the precision stage so that it precludes the continuous romance that lures learners into each aspect of what needs to be learned in light of the attraction of the most worthwhile and interesting possibilities. The discipline of this stage is self-discipline that allows for self-control which Taylor was looking for in response to the complexity and ambiguity of emerging situations. Learning in this phase provides for the development of the capacity of learners to enter into previous non-accessed areas of interest, need, productivity, analysis, and synthesis. The subjective self-discipline that is learned in this process is the recognition that constant valuation and evaluation of the worth and currency of specifics makes it

possible to create and master forms of knowledge that focus attention, generate new possibilities and consolidate previous acquisitions into definitive purpose and effect. Sustainability is found in this self-discipline, the self-discipline of attuned respect for fathoming the value of what is in relation to the synthetic creation of what can and should be.

Generalization is the experience of "definiteness" in which "details are swallowed up in principles" (37) and generalization provides for the "active utilization of well understood principles" (37). This definitiveness is a form of coming together and crystallization of learning that makes for new freedom, new life and new learning possibilities because what is learned provides fulfillment of initial interest and assessed worth and becomes a decisive element available for improving other related realities. It is possible to have learning processes that are filled with romance and activities that excite and are inspiring as well as disciplinarily rigorous but do not bring learners to definitive productive or useful conclusions. Generalization in learning, however, can offer a new freedom including the freedom to act on issues with acquired skill, strategic direction, programmatic lucidity, clarity of purpose, and vivid "apprehension of value." The generalization phase in the rhythmic cycles of learning in education for sustainable development makes new development possible because it consolidates what is learned in the previous phases so that it can be available for into definitive projects, positions, understandings, and/or relationships.

Whitehead's theory of education and learning is based in the self-emergent subjectivity of learners and the inter-subjectivity of co-learners intent on consolidating selected value of the past with selection of the most ideal prospects. For organizations such as the regional centers of expertise, this model provides for the continuous self-emergence of value over and against models that might be pre-occupied with technical rational requirements. This is especially the case for designing evaluation, monitoring, policy development, and other processes that do not become caught up in technical rational assumptions which result in the production of "inertia" through life draining reporting; monitoring, and policy production processes that kill the drive of self–emergent subjectivity. Inert ideas and processes for producing inert ideas stifle the creativity of romance, precession and generalization critical for producing and utilizing well understood principles to add value to experience.

7. Ontological Foundations of Valuing in Whitehead's Process Cosmology

> Our choices bring value into the world. We are a bridge between timeless forms, in a domain of possibility, and the irreversible actuality

which our creative actions establish in history. The quality of the cosmos, its value, is contributed to by our own value selections" (Brumbaugh, 126).

In contrast to the 17th century scientific materialist cosmology where the primary units of reality are conceptualized as inert, unchanging atoms of matter that only relate to one another externally, all events in Whitehead's cosmology are constituted by other events. These events are self-creating occurrences of coming together, decisive completion, and projection into the future. Whitehead refers to the encounter, adjustment and resolution cycles of these occasions of actualization as prehension, concrescence and satisfaction. Whereas in the materialist cosmology, space serves as a container in which atoms of matter only relate externally through successive units of time, in Whitehead's cosmology, these actual occasions constitute the emergence of space and time through their internal relatedness to one another, and through their conformal or conforming relation to each previous occurrence. Once the emergence each actual occasion is decisively actualized, it perishes and becomes objectively immortal as fact with its potential to influence the future.

Although each present occurrence emerges in direct conformal relation from the past, the past is essentially gone and the future is not here yet. Valuing, therefore, occurs in the crucible of actualization in the "insistent" present through which selected indeterminate possibility becomes decisive reality for the future. This freedom created by the existence of possibility makes value itself possible. Without a world of possibilities, valuing itself would not be possible for there would be no basis upon which to discern and select from among options. Because of possibilities, just how one interprets, values, and transmits the past into the future occurs as the present. Valuing, therefore, is the process of determination from indetermination that decides what becomes the immediate present and the consequent past which extends to shaping the future. The very sustainability of organic growth, evolution and development in the world is continuously presupposed upon this process.

In his chapter "Immortality" in *The Interpretation of Science*, Whitehead presents valuing in terms of valuation and evaluation. Valuation is that form of selection which involves discernment of the worthiness of possibilities which exist for each circumstance. Each emerging occasion of experience offers value possibilities for each circumstance. Because of the range of variations and gradations of value possibilities for each occasion, valuation is necessary if some initiative or purpose is to be developed and sustained. For entities such as humans to develop a particular character with distinguishing definition that persists from one occasion, event or crisis to the next, there must be a process of selectivity which includes discernment of options that differentiate one value possibility from another.

Life and learning are constantly about value-judgments aesthetic, moral or otherwise in which options are valuated. Our lives and the development of environmental, social, political and economic policy and practices are fraught with differences of power, interpretation and analysis. The sustainability of any development requires learning to make judgments about what constitutes the most valued possibilities. Education interested in increasing the capacity of learners to sustain the development of their power to discern differences and options needs to focus on valuing as "valuation."

Evaluation is the other form of valuing. From "e"-valuation, meaning to draw out value, evaluation can be understood as engaging in creative action to incorporate what one values into ongoing social, political and environmental life circumstances. Evaluation means that one needs to be able to make value judgments about what is the maximum ideal value possibility that can be feasibly incorporated into the complexity of specific circumstances to modify or change situations in light of past perspectives purposes and future prospects. Value possibilities are not merely to be enjoyed only cognitively or abstractly. They are persuasive forces of the universe not only because of their lure for action but because when values are actualized these values become objectively immortal as fact and can project their impact on the future. Through the evaluation processes of constantly incorporating the most worthwhile value possibilities into current circumstances, one is able to build from one decision to the next. Education increases one's capacity to sustain the making of judgments about how to incorporate value into diverse and complex circumstances.

Learning as valuing combines development of the capacities of valuation and evaluation so that individuals, societies and cultures can differentiate, select and create through discernment among the complexity of value possibilities; and so they can actualize these values in practical circumstances. It is possible for, example, for the world's human population to organize itself to be less consumer-oriented, less polluting, to address climate change, etc. Education needs to focus upon assisting learners how to assess and draw out value and achieve the wisest of possibilities. This notion of learning is essentially distinct from the idea of accumulating knowledge, from simply engaging in deconstruction and critique, and from constructing solutions which are meaningful but do not decisively and definitively address critical issues.

Each of the rhythmic cycles of learning adds value to the immediacies of life through valuation and evaluation. In the romance phase of this cycle, learners are drawn to consider what constitutes the most alluring value possibilities that have the greatest prospects for one's immediate and proximate circumstances and for the flourishing of the planet and humankind. Valuing occurs as the aesthetic,

moral and intellectual appreciation of these value possibilities in the complexity and ambiguities of their variety and differences. In the precision phase, valuing is the selection of specific details by concentrating on what is most important and valuing occurs in the last phase of generalization when all is drawn together to make the most worth while definitive decisive choice. In this process framework, education for sustainable development can be created through the design of education programs, structures and processes that develop the intrinsic capacity of individuals and groups to seek a more adequate wisdom which cultivates the moral imagination to discern and achieve what is most important, and in doing so to have the courage to become committed to truth beyond fear. Though this learning as valuing, learners are able to directly address issues of complexity and ambiguity by critically and creatively addressing the sustainability of their own individual and collective self-development.

Bibliography

01. Ahmadabad Declaration 2007: Call to Action, Retrieved May 31, 2009, http://www.tbilisiplus30.org/Ahmedabad%20Declaration.pdf

02. Brumbaugh, R. S., *Whitehead, Process Philosophy, and Education*, Albany, New York: SUNY, 1982.

03. Fadeeva, S., 2008 PowerPoint Retrieved May 31, 2009 http://www.unesco.org/science/psd/thm_innov/unispar/zakri_08.ppt#453,10, What is ESD? (cont'd)

04. Garrison, J., *Dewey and Eros: Wisdom and Desire in the Art of Teaching*, New York: Teachers College Press, 1997.

05. Mochizuki, Yoko and Fadeeva, Zinaida, "Regional Centres of Expertise on Education for Sustainable Development (RCEs): An Overview," International *Journal of Sustainability in Higher Education*, v9 n4, 2008, p369-381.

06. Morito, B., *Thinking Ecologically: Environmental Thought Values and Policy*, Halifax: *Fernwood Publishing, 2002.*

07. Taylor, Jim, "Education for Sustainable Development: Perpetuating Myths or Bringing about Meaningful Change," Unpublished Manuscript.

08. Daloz Parks, S., "Professional Ethics, Moral Courage, and the Limits of Personal Virtue," *Can Virtue Be Taught?* Notre Dame: University of Notre Dame Press, 1993, 195214.

09. McMurtry, J., *Unequal freedoms: Global market as an Ethical System*, Sterling, VA: Kumarian Press, 1998.

10. Purpel, D., *The Moral and Spiritual Crisis in Education: A Curriculum For Justice and Compassion*, New York: Bergin and Garvey, 1989.

11. Sachs, W., *Planet Dialectics: Explorations in Environment and Development*, London, ZED Books, 1999.

12. Taylor, Jim, "Education for Sustainable Development: Perpetuating myths or bringing about meaningful change?" Fadeva, Z. (In press, Ed.) Perspectives from Regional Centres of Expertise. United Nations University, Tokyo. (Forthcoming).

13. United Nations "Chapter 36: Promoting Education, Public Awareness and Training, *Agenda 21*, Retrieved, June 7, 2009, http://www.un.org/esa/sustdev/documents/agenda21/1chapter36.htm

14. United Nations Decade of Education for Sustainable Development (DESD), Retrieved, June 7, 2009, http://www.unesco.org/uil/en/focus/undecade.htm

15. United Nations, Decade of Education for Sustainable Development, Objectives, Retrieved, June 6, 2009, http://portal.unesco.org/education/en/ev.php-URL_ID=23295&URL_DO=DO_TOPIC&URL_SECTION=201.html

16. United Nations Department of Economic and Social Affairs, Division for Sustainable Development, Retrieved June 7, 2009, http://www.un.org/esa/sustdev/documents/agenda21/index.htm

17. United Nations University (UNU), Regional Centers of Expertise on Education for Sustainable Development, Concept Paper, Recovered, May 31, 2009 http://www.ias.unu.edu/resource_centre/RCE%20Concept%20Paper.pdf

18. Whitehead, A. N., *The Aims of Education and other essays*, London: Free Press, 1929/1957.

19. Whitehead, A. N., *Process and Reality*, London: MacMillan Publishing, 1978.

20. Whitehead, A.N., *Religion in the Making*. New York: Macmillan Co. 1926 /1960.

21. Whitehead, A. N., *Science and the Modern World* Cambridge: University Press, 1938.