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TRANSLATING PROCESS PHILOSOPHY INTO EDUCATIONAL PRACTICE FOR THE EMERGING GLOBAL SOCIETY

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1. Introduction

Two generations ago H.G. Wells, acutely conscious of the potentially calamitous fissures in our culture, wrote that humanity was engaged in a race between education and catastrophe. Never before has this race been closer and challenging than it is today as humankind stands poised with a feeling of impotent perplexity at the "Great Divide". It can consciously turn in the right direction to fulfill its destiny to carry forward an ever-advancing culture and global civilization or to continue downward along a perilous path leading to divisive barbarity, fanned by the modern-day "isms" - fanaticism, fundamentalism and terrorism.

At the heart of all debates regarding the redirection of a suffering humanity from this struggle is the imperative need of a transformation of the sorely divided cultures to a vibrant and universal fraternity of humankind through a universal and global system of public education. Such a system must be rooted on the awareness of the

organic oneness and wholeness of mankind and essential interrelatedness and interdependence of all phenomena - physical, biological, psychological, social and cultural, spiritual, transcending the traditional disciplinary and conceptual boundaries. This system is to be firmly anchored on what Sheldrake calls, a "new science of reality", that has emerged from a variety of disciplines viz., metaphysics, quantum mechanics, post-modern psychology and the neurosciences (Sheldrake, 1981). The major paradigm shifts that have occurred in these disciplines in the last century have shaken the very foundations of a reductionistic worldview that had dominated scientific thinking for centuries. Gone forever are the images of a mechanical universe to be replaced by an irreversible image of an "organismic, a process or a systems view" of the universe and humankind's place in it (Laszlo, 1996). This new paradigm was initially ushered in by process philosophers like Berg son, Gegel and Whitehead and further confirmed empirically by contemporary particle physicists. The universe and all that it contains is an organism involved in the eternal process of becoming, rather than as a mechanism or being. This new metaphysics has already launched a new era in the physical, biological, and social sciences. Indeed, it will revolutionize our civilization in the twenty-first century. This contemporary global mind-set change has in turn ushered in a new epistemology, stimulating new knowledge and novel ways of knowing, sharing and practicing that knowledge. (Willis, 1998)

2. Process Philosophy and a New Basis for Educational Planning and Redirection

"Any serious fundamental change in the intellectual outlook of human society", Whitehead observed, "must necessarily be followed by an educational revolution. It may be delayed for a generation by vested interests or by the passionate attachment of some leaders of thought to the cycle of ideas within which they received their own mental stimulus at an impressionable age. But the law is inexorable that education to be living and effective must be directed to informing pupils with those ideas, and to creating for them those capacities which will enable them to appreciate the current thought of their epoch"(Whitehead, 1957).

The core of this "fundamental change in the intellectual outlook" and "the current thought of the epoch" is the irreversible paradigm shift in our contemporary worldview, necessitated by the processes philosophy articulated by Whitehead himself. His organismic view of the world, subsequently validated by the empirical evidences in the hard sciences in the later half of the last century, has emerged as the most plausible theory with the best possible integrative power in the present era of information explosion. Consequently, it has profound implications for the redefinition

and even a transformation of education to give it a pivotal role in the globalization process.

In this era of rapid change, educational institutions across the planet “delay more than a generation” and are notoriously the slowest to adapt to new realities and wake up to meet the needs and exigencies of the day. Recognizing the urgency of the needs, the Center for the Study of Human Potential at the University of Massachusetts, at Amherst, proactively developed a holistic model of education to meet the needs of the emerging global culture. The educational model, called ANISA Model, presented here is one such attempt to translate the Whiteheadian cosmology into educational practice.

Anisa means “tree of life”, a cultural archetype, symbolically represents never-ending growth and fruition in the context of protection and shelter, and signifies the blending of the useable and fruitful past with a new sense of the future. A full description of this prodigious work (ANISA website: <http://chiron.valdosta.edu/anisa>), done by a team of scholars assembled and led by a visionary, Prof. Daniel Jordan, in the early seventies at the University of Massachusetts at Amherst and later at the National University in San Diego, CA, is limited by consideration of time given for this session. I am honored to see, Dr. Donald Streets, the Associate Director, of this project and also my doctoral committee member, in this assembly to give me the moral support in this presentation.

The model has drawn heavily on Whitehead’s philosophy of organism (Whitehead, 1933) as the means of rationalizing a new vision and an organizing first principle that can integrate the massive knowledge about human development in a way that illumines the nature of man and accounts for the phenomenon of purpose and its role in the continual actualization of human potentialities. In this effort the model drew on two basic ideas of the process philosophy. In the first place, Whitehead affirmed an ancient ontological principle, namely, that everything in the universe is connected to everything else and that nothing can be understood apart from its relationships to all things it is connected to. This means that the nature of man cannot be grasped unless we understand how he is related to everything around him. Because of consciousness, memory, and the capacity for forming and using symbols, man connects himself to everything imaginable, including ultimate unknowables. Thus, no real progress can be made in trying to understand the nature of man without considering the universe of which he is a part. Hence the search for first principles around which human development knowledge can be organized necessarily entailed metaphysical thought. Secondly, Whitehead, like so many philosophers before him, cited change as the fundamental characteristic of the universe. Change means process and process presupposes potentiality.

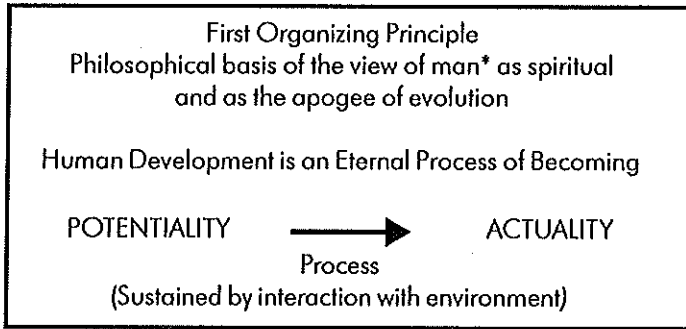
Whitehead thus set forth the basic proposition that the reality of any being inheres in the process of its becoming whereby potentiality is translated into actuality – a process he identifies with creativity, the “universal of universals”.

Without such a philosophical base there is no hope for creating an educational system that is consistent, coherent and free of the contradictions that make practice ineffective. The chief feature, which distinguishes man as organism from man as mechanism is creativity guided by purpose. Because it is a synthesis of both Eastern and Western streams of philosophical thought, Alfred North Whitehead’s cosmology, in *Process and Reality*, was found to be the most appealing system of ideas against which to test the power, coherence and comprehensiveness of the concepts that has been adopted in the model to unify the vast amount of knowledge about human development now available. Their actualization represents man’s becoming and his essential reality. The capacity to perpetually move beyond himself is indicative of man’s superiority over all other created things. The Anisa educational system, therefore, views man as the apex of creation, capable of endless expression of an unlimited potential. From this conception of man’s nature was derived a definition of good education as the process of translating potentiality into actuality at an optimum rate. A teacher who accepts this view of the nature of man will see each child as a creature of unlimited potentiality and can never be classified as uneducable. The very atmosphere of an educational system staffed by teachers who consciously affirm the spiritual nature of man is much more likely to release the potentialities of its students than one whose staff denies this fundamental characteristic.

The basic flaw in western psychology is the assumption that one can know the totality of something by examining the pieces or parts that comprises it. The whole of something has a reality that is more than its component parts represent. Thus, this atomistic, mechanistic view of man misguided psychologists into believing that elementary sensations, reflexes and conditioned responses are sufficient to explain the entire nature of man, and that freedom, dignity, sense of purpose, aspiration, will and creativity are mere illusions that have no place in a scientific understanding of man. An application of this belief rests on the assumption that one can understand man by looking at the behavior of lower forms of creation. This is a fundamental error, for it ignores those aspects of human functioning that are characteristically unique to humans. Educators have been following the mechanistic line of reasoning and adopting it as a basis for an entire educational system and now consequently find it woefully inadequate and ultimately unworkable.

The first order of business in conceptualizing the model was the articulation of a first principle and philosophical base on the nature of man as articulated above

and from which was derived a superordinate theory of development, from which were formulated two interrelated and compatible theories, a theory of curriculum and a theory of teaching- all in service of one overarching goal (Jordan & Streets, 1973). The main purpose of formulating these theories is to make education a scientific endeavor and the theories can be empirically tested out and refined over time in different environments and cultures thus make education an enterprise of perpetual self-renewal.



3. A Theory of Development: Defining the Process of Becoming

Curriculum, in general practice, is defined too narrowly in terms of subject matter or content rather than in the broader context of human development, it is felt that that curriculum development must be given a broader theoretical base that takes into account the nature of development and directly reflects the idea of process. Using the above characteristics of development as a point of departure was the formulation of a comprehensive theory of development, which defines development as the translation of potentiality into actuality and equates the translation with creativity, the "universal of universals" (Whitehead). The theory accounts for the means (process) by which the translation takes place, classifies potentialities, establishes three basic categories of environment, and describes the nature of actuality in terms of value formation.

The theory of development establishes two fundamental categories of potentialities: biological and psychological. It cites nutrition as the key factor in the actualization of biological potentialities and fixes learning as the key factor in the actualization of potentialities. The Anisa Model therefore has a strong emphasis on proper nutrition and good health. It makes a provision for intervening in the anticipated life of a

child a year or so before its conception by insuring that the nutritional status of the mother and father is maximally improved in preparation for his genesis. Since the provision of adequate nutrition remains critical, the model provides for collaborative efforts among community, school and home to maintain an optimal nutritional status (with zero tolerance for toxicants like alcohol and habit forming drugs) not only to safeguard the ecology of the womb during the structuring and intercessory integration of the neuronal network but also for ensuring the structural and functional integrity of the brain to prevent learning deficits and intellectual dysfunction in later years (Raman, 1973, 1974a).

While the process curriculum of the Anisa model includes nutrition and the development of biological potentialities, this presentation focuses only on the elaboration of the process curriculum related to the actualization of psychological. Psychological potentialities are broken down into five basic categories: psychomotor, perceptual, cognitive, affective, and volitional. The emphasis of a process curriculum is on the "how" as opposed to the "what" of a content curriculum. For instance, the content curriculum may focus on *what* a child should be thinking about whereas the process curriculum focuses on enabling a child to learn *how* to think. The process curriculum of the Anisa model is thus organized to enable eventually a student to consciously know how to move his muscles and gain maximum control over them, how to perceive, how to think, how to feel, and how to formulate intentions and consummate them. Learning how to learn is therefore the basic objective of the process curriculum (Jordan, 1975); it is the means whereby one takes charge of one's own becoming.

4. Development and the Theories of Curriculum and Pedagogy

The Anisa theories of curriculum and pedagogy are derived from theory of development, which, as noted above, defines development as the process of translating potentiality into actuality and designates interaction with the environment as the means by which the process is sustained. The word process is used to refer to the functioning that is made possible by the psychological structure in the brain which is built up out of the organism's particular interactions with particular environments. Process is not to be confused with the classroom activity that is provided for student.

The theory of curriculum defines curriculum as two interrelated sets of educational goals and what children do, usually with the help of teachers, to achieve those goals. One set of goals is process oriented. It rests on the classification of potentialities

and the processes, which comprise them. The other set of goals is content-oriented. It rests on the classification of environments and the organization of information one's culture has accumulated about them, including the symbolic systems used to convey that information.

The theory of pedagogy defines teaching as arranging environments and guiding the child's interaction with them to achieve the educational goals. Thus, teaching insures the achievement of learning competence (process) while assimilating information about the environments (content). Process and content are fused as potentialities are actualized and structured to form an identity-a self-with the characteristics of a competent learner.

5. Classification of Psychological Potentialities and the Process Curriculum

The model classifies the potentialities or powers of man into five categories, each of which is comprised of processes that underlie learning competence and are the means through which those potentialities become actualized. The categories of potentialities are: psychomotor, perceptual, cognitive, affective and volitional. Specifications on the basic processes in each category and how to facilitate their actualization in the day-to-day pedagogical practice have been developed. These specifications constitute the process curriculum and include definitions of each process, its relationship to learning competence, a translation of the process into an educational objective in the form of operational definitions, explanations of pertinent developmental aspects of the process, a presentation of several prototypical-learning experiences needed to master it and a statement concerning evaluation. There are no doubt an infinite number of processes in each category. (See table below)

A. Psycho-motor Potentialities

Competence in this area refers to a capacity to coordinate, control and direct the movement and position of the voluntary muscles. As the child comes to know where and what his body parts are and how they work together, he attains a positional and functional awareness of the body as a reference point to which he relates the physical environment within a space-time context. The formation of the motor-base and the achievement of psychomotor competence comprise one of the most important developmental requirements of the infant and preschooler. Among the processes, which comprise the motor-base, are balance and posture with their sub processes (laterality, verticality and directionality): locomotion, contact, manipulation, receipt and propulsion.

B. Perceptual Potentialities

Perceptual competence refers to the capacity to differentiate sensory information and then integrate that information into generalizable patterns, which constitute interpretations of reality that enable the organism to make meaningful decisions and to act. Both vision and hearing have been broken down into a large number of processes, mastery of each one of which is an educational objective of the model.

C. Cognitive Potentialities

This refers to capacity for abstract thinking and higher order processing; finding relationships in the information gained by the perceptual process and refers to the intellectual processes necessary for thinking and reasoning.

D. Affective Potentialities

Attaining affective competence refers to the ability to organize one's emotions and feelings that energize the system and support in a positive manner the release of further potentiality. Teachers can assist children to achieve affective competence (emotional intelligence) through the relationships they establish with them, consistency of feedback being one important element in its achievement.

E. Volitional Potentialities

Recent trends in psychology have begun to address the theoretical vacuum created by psychology's rejection of volition, or will, as a meaningful aspect of human functioning. This was for the most part a consequence of the mechanistic, reductionistic view of man as a creature whose behavior is determined by external stimuli rather than intention or some intrinsic determinant. It is virtually impossible to make sense out of anyone's behavior without ascertaining his intention or purpose. Whitehead places great emphasis on the role of purpose as a vital element in the translation of potentiality into actuality. It is through purpose, or subjective aim, that concrescence is guided and directed; it provides criteria for making choices among a variety of possibilities and enables man to achieve control over his own destiny. Thus, the role of subjective aim or purpose in concrescence is basic. In summary, volitional competence is the capacity to form ultimate aims, differentiate them into operable goals and integrate them into a perpetual flow of intentional behavior directed towards the achievement of those goals

The following table gives some examples of processes underlying the actualization of the psychological potentialities.

Processes in the actualization of psychological potentialities

Psychomotor	Perceptual	Cognitive	Affective	Volitional
Balance Posture Verticality Perseverance Directionality Effecting Locomotion Closure Contact Manipulation Visioning Propulsion	Vision Audition Gestation Coetaneous - Senses Vestibular senses	Classification Conservation Number relations Analysis Synthesis Deduction Induction Interpolation Extrapolation	Copying Managing anxiety and disappointment Facilitating joy and happiness Expressing optimism Delay of gratification Sharing	Attention Goal setting Perseverance Effecting closure Imagining Visioning end state Marinating interest

6. Classification of Environments and the Content Curriculum

Information about the universe in which we live -our total environment-constitutes the source of the content curriculum. The model establishes three basic classifications of the environment following the ontological levels of creation, as set forth by Whitehead, and is arranged in an increasing order of self-determinacy, starting from the mineral, plant, animal, human and the unknown.

- A. **The Physical Environment:** This environment includes everything except human beings. It can be broken down into three sub-categories: mineral, botanical and animal.
- B. **The Human Environment:** This environment includes all human beings with whom one may come in contact.
- C. **The Unknown and/or Unknowable:** Because consciousness enables us to know when we don't know and when we are dealing with unknowns or the unknowable, this aspect of the environment cannot be ignored. Knowing that we don't know is what makes us curious.

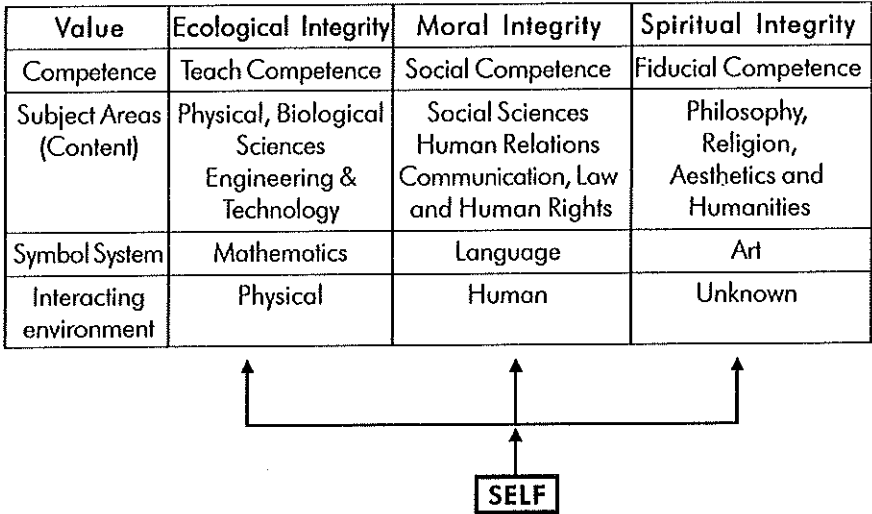
- D. **The Self:** The Self is a reflection of the above three environments. It is made of physical materials and it is a human Self that has many unknowns about it. The unknowns in a Self include the nature of its as yet unexpressed potentialities, its future and the phenomenon of personal mortality. Three interrelated symbol systems mediate the assimilation of the content and process curriculum, one for each of the first three environments listed: math (here math is referred to not as a subject area but as a "symbol system: to explain quantitative formulation of relationships) for the physical environment; language (i.e., German, Malayalam, Swahili, etc.) for the human environment; and, the arts for the environment of unknowns. Since the Self is a reflection of the other three, all three-symbol systems are used by the Self to assimilate information about its own self. The way disciplines have been organized traditionally does not deviate significantly from the organization of the Anisa content curriculum. For instance, the natural sciences, natural history, math and technology constitute content organized around the first category; language (speaking, reading and writing), human relations, communications and the social sciences around the second; and art, aesthetics and the humanities around the third.

7. Value Formation: Structuring the Fusion of Content with Process

As the learner interacts with the environment, his potentialities (expressed through the processes) are actualized, i.e., they become capacities. But these capacities when they are structured form the attitudes and values, which constitute the character and personality of the human being (Raman, 1974b). The structuring takes place in relationship to the various environments with which the human being is interacting. Thus, different value systems reflecting these environments emerge. Interaction with the physical environment releases potentialities (psychomotor, perceptual, cognitive, affective and volitional) which, when blended with content (information) concerning that environment, are structured into material attitudes and values. On these values rest the technological competence of the person. Interaction with the human environment translates potentialities into structured actualities or powers which, when fused with information about mankind form the social attitudes and values on which a person's moral competence rests. To interact with an unknown is to structure it and to structure an unknown is to form an ideal, broadly defined. Such interaction leads to the formation of religious attitudes and values, on which spiritual competence rests. Again, "religious" and "spiritual" are used as psychological terms rather than as denominational ones. To structure an unknown requires an act of faith and is therefore religious in that sense. When a Krishna, a Buddha, a Moses, a Christ or a Mohammed "reveals" a way of structuring of the ultimate

unknowns and large numbers of people accept it, a religion is founded. All people form religious values as we define them, including atheists, simply because there is no other way to relate to unknowns except on faith.

The following scheme depicts in essence the basic conceptual scheme of the model. (Adapted with modifications from Jordan & Streets 1973)



8. Conclusion

What is presented here is a new vision of education as the transformation of man and a way to sustain it. Education, Whitehead observes, “is the guidance of the individual towards a comprehension of the art of life. I mean the most complete achievement of the varied activity expressing potentialities of that living creature the face of its actual environment. The completeness of achievement involves an artistic sense, subordinating the lower to the higher possibilities of the indivisible personality. Science, art, religion and morality take their true sense of values within the structure of being. Each individual embodies an adventure of existence. The art of life is the guidance of this adventure (Whitehead, 1957, 39).

The development of the framework of the Anisa Model is one attempt for a rationalized expression of the guidance of the individual towards this “art of comprehension of life”. If that rationalized expression is a reflection of that process of “completeness of achievement” as articulated and defined by Whitehead, then this model is destined

to become to be the long-awaited educational revolution compatible with the new picture of the cosmos and the nature of man as expressed in the process cosmology of Alfred North Whitehead.

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