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ABSTRACT

Emerging educational needs in the interdependent world of the Information Age are explored. The current global human predicament in the historical context of the evolution of human systems is examined. A description is given of a systems view of the current evolutionary stage and the new educational needs of the Information Age that can be derived from an understanding of the evolutionary transformation currently taking place. It is emphasized that in the Information Age, the central challenge of education is to develop evolutionary competence in people and in societal groups (from local to global) which will give direction to human evolution. Evolutionary competence is characterized in terms of knowledge, understandings, ways of thinking, skill, dispositions, and values. A curriculum model is displayed that is relevant to evolutionary competencies. Instructional and learning arrangements and resources are defined that can enable the development of these evolutionary competencies. Three types of learning are considered: socially supported individual learning, social learning, and societal learning. (Author/JD)

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THE CHALLENGE OF EVOLUTIONARY LEARNING.

Bela H. Banathy

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

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This presentation will explore emerging educational needs in the interdependent world of the Information Age.

I shall first portray the current global human predicament in the historical context of the evolution of human systems. Then I shall develop a systems view of the current evolutionary stage and will show that the new educational needs of the Information Age can be derived from an understanding of the evolutionary transformation that currently take place.

The main theme of the presentation is the following: In the Information Age the central challenge of education is to develop evolutionary competence in people and in societal groups (from local to global), competence that enable us to give direction to our own evolution.

The content and structure of our educational systems not only omit almost all instruction/learning relevant to evolutionary competence but develop and maintain habits of inquiry that do not permit the perception of evolutionary visions of the future.

Evolutionary competence will be characterized in terms of knowledge, understandings, ways of thinking, skills, dispositions, and values. Furthermore, a curriculum model will be displayed which is relevant to evolutionary competence. Next, instructional and learning arrangements and resources will be defined that can enable the development of evolutionary competence. It will be shown that we need to think about three types of learning: socially supported individual learning, social learning, and societal learning. The educational system that can provide for the type and kind of learning described above should be conceptualized as one which has a wide and broad learning resource base, embedded in many societal systems.

THE CHALLENGE OF EVOLUTIONARY LEARNING*

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INTRODUCTION

As we approach the end of the 20th Century, the worldwide changes that have been brought about by unrestrained growth and technological advancements, coupled with the knowledge explosion of what we have learned to call the "information age," are no longer viewed as the route to a better future for humanity. These changes have occurred at a much faster rate than a corresponding rate of adaptive change in our societal systems. It is this discrepancy in rates of change that is the central source of the current "world problematique."

Even though we are increasingly aware of our global reality, our collective consciousness remains constrained within extended tribal, national, or--at best--regionally defined international boundaries. The solution to this predicament is education for global consciousness in the form of individual and societal learning by which we can develop competence in thinking and acting locally and globally and acquire the capability and societal capacity to give direction to the evolution of our human systems and the evolution of humanity as a whole. Thus, the educational challenge of the information age is to apply the emerging knowledge base and information technologies to provide arrangements and resources for the acquisition of EVOLUTIONARY COMPETENCE through EVOLUTIONARY LEARNING.

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I intend to define and elaborate the type of education and learning I have just defined as my contribution to this Assembly. I develop my theme as follows:

- o I first examine the human predicament from a historical perspective of the evolution of human systems and will point to the existence of a dangerous evolutionary gap.
- o Focusing on the current stage of evolution, I will show that we have reached a juncture of a critical choice. To make the right choice, we need to be aware of the barriers that hinder evolution toward a hopeful future as well as those that inhibit our unlimited potential to learn and to give direction to our evolution.
- o I then propose that EVOLUTIONARY LEARNING, if introduced as individual and social learning, will create human and societal potential and competence to address the global predicament successfully and develop global consciousness in the human community.
- o Next, I define peace development as the most significant functional context as well as the curriculum content of education for evolutionary competence.

In closing, I will challenge the ICET community to accept the challenge of evolutionary service by embracing the idea of evolutionary learning and help to develop and promote the introduction and implementation of education for the acquisition of evolutionary competence.

THE EVOLUTION OF HUMAN SYSTEMS: AN HISTORICAL PERSPECTIVE

The evolution of human systems can be characterized by the emergence of a series of major stages, marked by the reorganization of human experience at ever higher levels of complexity (Curtis, 1982). I review these stages briefly and shall draw some generalizations that will help us to understand the significance of acquiring evolutionary competence through evolutionary learning in the continuing process of human evolution.

STAGE ONE of human evolution emerged with the development of the first truly human creation: speech. Speech extended the boundaries of human social

experience to include audiences within a horizontal transmitting distance. The time boundaries were also extended across generations through oral tradition. Magico-religious myth became the all-embracing paradigm for knowledge and understanding, perpetuating the past. Tribal systems have emerged as functional human activity systems and thus have provided the integrative context of human consciousness.

STAGE TWO emerged with the development of writing, which enabled humans to manipulate ideas and referents in their habitat. Communication through writing spanned distances far greater than speech; it extended the spatial boundaries of human experience, and enabled the reorganization of human systems at higher levels of complexity. This reorganization brought with it an increasing differentiation of roles in the village, the city, and the city state. The time boundary was also further extended into past and future generations; formal history emerged as a documentation of collective human experience. Religion and myth became complemented by the logico-philosophical paradigm, best manifested in the culture of the Greek civilization.

STAGE THREE emerged with a new mode of communication: print. Print extended the spatial boundaries of human experience and created national systems of various language communities. The renaissance period exemplifies the integrative force of this stage. With the availability of printed text, literacy spread and gave birth to public education and, in turn, brought forth the potential of collective decision making in the form of democratic governance. Gradually, Newtonian science replaced the logico-philosophical paradigm and established the scientific base of modern technology. The marriage of science and technology placed at our disposal increasingly more effective tools and means as extensions of our muscles and senses. Technologies of the emerged industrial revolution were used--wisely and often

unwisely--to exercise powerful influence on our habitat and on the construction of new habitats. This stage was marked by the emergence of national consciousness and a thrust for scientific rationality.

At STAGE FOUR, around the turn of this century, "instant" telecommunication exploded the spatial boundaries of the human experience, embracing the whole globe. Beyond national consciousness, the potential of global humanity and global consciousness emerged, even though not yet realized at this stage. On the time horizon, rapid changes in science, technology, and societal arrangements induced a dramatic shift toward interest in the future. Progress with techno-scientific means, however, was questioned as we realized that such progress often impacted our lives and our habitats in profoundly undesirable ways. Science burst into specialization and technology into further differentiation. A feeling of loss of control--even alienation--has surfaced and focused interest on "self," on the subjective, and on the intuitive. Epitomized in existentialism and relativism, a strong reaction emerged to the objective, deterministic, and reductionist paradigm of Newtonian science.

STAGE FIVE is our current evolutionary stage. It has emerged with cybernetic/systems technology as a quantum leap in communication and has given birth to the "Information Age." The computer has provided us with a powerful means to extend our cognitive powers, in that it has the ability to process practically unlimited amounts of information. Furthermore, this new generation of technology offers the promise of "knowledge processing." Systems inquiry has emerged as the new paradigm for knowledge production, organization, and utilization; and, along with traditional scientific inquiry, it has taken its place as a complementary paradigm. When taken together, these two paradigms embrace all knowledge.

When Pioneer Two left the solar system, our spatial horizon became extended into the cosmos, creating the potential of cosmic consciousness, at a point in time when we have not yet attained global consciousness. Thus, we have an evolutionary imbalance; an "evolutionary consciousness" gap. Mankind is in search of a new identity, seeking integration and longing for a new renaissance.

A Generalized Image of the Evolution of Human Systems

A systems view and a holistic perspective of the evolution of human systems may help us draw some general conclusions from our historical review (Banathy, 1985). A systems view leads us to focus on relationships among phenomena, seek to attain a synthesis, and thereby capture and define whatever is emerging from our synthesis at a higher level of understanding. A holistic perspective provides us with a lens through which we can observe the various evolutionary stages and thus capture a more comprehensive vision of evolution. Therefore, by applying a systems view and a holistic perspective, we may come to understand evolution as:

- o the creation and design of new systems and technologies of communication;
- o the constantly expanding boundaries of the space and time dimensions of the human experience;
- o the continuously unfolding of new relationships among human systems, leading to their reorganization at higher levels of complexity;
- o the emergence of new paradigms of knowledge organization and utilization and new ways of thinking;
- o the fluctuation of the dynamics of specification, differentiation, and integration; and from the systemic interaction of the above dynamic forces; and
- o the creation and emergence of new images of mankind at higher levels of collective consciousness.

Each and every evolutionary level is of course influenced by its antecedent level. For a new stage to emerge, a set of conditions has to be present, characterized by Csanyi (1992) as the zero-system of evolution. A particular level can be comprehended only by understanding the systemic characteristics that emerge by the integration of new forces and dimensions that come into play at that level. The succession of the evolutionary levels portrays the growth and development of human consciousness; it is the source, motive, and object of sociocultural evolution. This evolution is directed by the innate tendency of the whole to create unity within its parts and synthesize their differences (Lorenz, 1977). It is the result of such synthesis that collective consciousness emerges. At our current evolutionary level, we have not yet attained a new synthesis of collective consciousness, and we have yet to create a unity of consciousness. Thus, today, we are confronted with an evolutionary crisis--a crisis of consciousness--which is the source of the current human predicament.

THE CURRENT CRITICAL JUNCTURE OF HUMAN EVOLUTION

Today, we are standing at a critical evolutionary juncture at which either unprecedented human fulfillment or the annihilation of the human race is equally possible. To better understand our current predicament and to grasp the critical nature of this evolutionary juncture, we should first look at the time scale of evolution:

- o Stage one, the evolution of human consciousness, speech communication, and the emergence of tribal cultures, spanned perhaps several thousand years.
- o Stage two emerged with writing and saw the flourishing of city states and philosophy and logic, lasting for about ten thousand years.

- o Stage three started with the renaissance and print, when science, science-based technology, and national consciousness emerged; it lasted four hundred years.
- o Stage four, emerging around the turn of this century, brought about telecommunication, and has had a time span of less than a hundred years.
- o Stage five is our current stage of evolution; the post-industrial age, the age of high technology, the information age; having less than 40 years of development.

Looking at the great disparity and disproportion of the time spans of the various evolutionary stages, we realize that the synergic effect of the speed and intensity of the development of stages four and five and the fact that these stages practically overlap, has resulted in a perilous evolutionary imbalance (Banathy, 1985). At stage five, scientific and technological progress has created the potential of a global human society, but our collective consciousness has lagged far behind, locked within ethnocentric and national boundaries. It is this evolutionary imbalance and consciousness gap that is the true "window of vulnerability" for mankind. In the international socio-political arena, this gap has produced the potential of the greatest threat for humanity: the very real threat of self-destruction.

Consciousness is an "awareness of awareness." Coupled with subjectivity, consciousness emancipated the human being from the confines of sensory reality and has placed us within a world we ourselves created. Consciousness, when evolved, took over the direction of our evolution. "The means became the end: the self-maintaining biological species was transformed into a culture sensitive to knowledge, beauty, faith, and morality" (Laszlo, 1972, p.99). Emerging at stage one, human consciousness continued its development throughout the various evolutionary stages. It has enabled the progressive freeing of human will from unconscious instincts.

At the current stage of evolution, however, humanity finds itself to be in a race against itself. Our creative insights, humanness, and spiritual aspirations are often opposed by old genetic drives. Our success at understanding and controlling the objective world--attained through science and technology--has given us the power to perpetrate ultimate destruction. At the same time, human science has lead us to an understanding of our inner selves as well as to an appreciation of the oneness of humanity. This new knowledge has, in turn, created the potential to attain collective global consciousness and holds the promise of world order (Shaker, 1983). But who will be the winner in this race?

The human race has changed profoundly the parameters of the evolutionary process. Our unlimited capacity for learning and the explosive rate that we produce knowledge, artifacts, and systems has had an extraordinary impact on evolution. At the current evolutionary juncture, the question that confronts us is: for what purposes are we going to use this capacity and our collective creative powers? The use of this force for creating a better future and giving a positive direction to our evolution is dependent on four conditions:

- o developing evolutionary consciousness and an evolutionary vision;
- o acquiring evolutionary competence through evolutionary learning;
- o creating positive and inspiring images of the future; and
- o realizing those images in our human systems.

The meeting of these four conditions is a prerequisite to closing the evolutionary gap described earlier. At the same time, these conditions are also the sources for defining the evolutionary challenge of the international educational community.

The Meaning of Evolutionary Consciousness and Vision

In evolution, the most advanced state of existence is human consciousness. It is expressed in its highest form in those who are the most developed in terms of their relationship to others and in their ability to interact harmoniously with all else in their sphere of life. They have the greatest capacity for shaping change as well as adapting to changing circumstances. It is now within our power to collaborate actively with the evolutionary process and use the creative power of our mind to guide the human race toward the fulfillment of its potential (Salk, 1983).

Understanding relatedness and interdependence in the global context is global awareness; having the intent, the will, the capacity, and capability to relate to all and to integrate with all else in the global system is the hallmark of global consciousness. Developing individual and collective global consciousness is the common task of individuals, the various societal systems, and the human community.

Evolutionary consciousness provides a sense of direction for cultural and mankind processes by illuminating the process with guiding images. And the faster we go--as we do at our current evolutionary stage--the further we have to look for signs and images to guide our movement (Jantsch, 1976).

"Evolutionary vision" was defined by Kenneth Boulding (1978) as an unified view of evolution that connects all reality from cosmic/physical through biological/ecological/sociobiological to psychological/social systems; but even more, it seeks to understand the evolutionary dynamics through which systems evolve. It attempts to grasp the principles underlying the unfolding of evolution over space and time.

The evolutionary vision has always been the source of inspiration for humanity, in both eastern mysticism and western thinking. "But a scientific

foundation of the evolutionary vision had to wait for the emergence of a new self-organization paradigm of the 1970s" (Jantsch, 1981, p.2). This new paradigm is embedded in the general theory of dynamic systems (Jantsch, 1980). The core concept of this paradigm is that evolution is not the result of one-sided adaptation and a desperate quest for survival, but--far beyond the biological realm--evolution is an expression of self-transcendence: the creative reaching out beyond the system's own boundaries. We humans are the integral agents of evolution; we spearhead it on our planet and perhaps in our entire solar system. "We are evolution and we are, to the extent of our power, responsible for it" (Jantsch, 1981, p.4).

THE CHALLENGE: ACQUIRING EVOLUTIONARY COMPETENCE THROUGH EVOLUTIONARY LEARNING

Evolutionary consciousness and evolutionary vision develops as we acquire evolutionary competence through evolutionary learning. Evolutionary competence enables us to give direction to our individual and collective evolution through purposeful design, provided we individually and collectively learn how to do it. The key point I am making in this paper is that the only hope we have for a future of promise lies in individual and societal learning of a set of understandings, ways of thinking, skills, and dispositions that are directed toward the development of evolutionary consciousness and evolutionary competence. In what follows, I will share with you my understanding of the nature of evolutionary learning and describe some of the key components of evolutionary competence.

The Nature of Evolutionary Learning

In the first section of my paper, I examined the human predicament from an evolutionary perspective and pointed to the existence of an evolutionary

imbalance---a dangerous evolutionary gap. In the second part, I characterized this gap and showed that humanity has reached a critical evolutionary juncture at which unprecedented fulfillment, as well as the annihilation of the human race are possible, and that the choice is in our hands. We possess in our creative power an unlimited potential for learning the necessary prerequisites to close the evolutionary gap and bring about a better future for humanity. I then outlined a set of conditions that we should meet in order to continue our evolutionary progress toward such a future. The first subset of these conditions is the attainment of evolutionary consciousness and the acquisition of evolutionary competence through evolutionary learning.

In defining evolutionary learning, I will place it first within the context of our current practice of education and will show that we face a major evolutionary task in education itself--namely, the empowering of education so that it can engender the acquisition of evolutionary competence.

A major hindrance to the development of evolutionary competence is inherent in our current practice of education, which is focusing on what Botkin (1979) calls "maintenance" learning. In our contemporary societies, maintenance learning involves the acquisition of fixed outlooks, methods, and rules of dealing with known events and recurring situations. We are promoting already established ways of life and systems that now exist. Maintenance learning is indispensable for the functioning of a society; but it is not enough. In times of turbulence, rapid change, and discontinuity--the characteristics of our current era--such learning has to be complemented with another type of learning, which is even more essential (at our current evolutionary stage), EVOLUTIONARY LEARNING that can enable us to cope with change and complexity, renew our perspectives, and redesign our systems, often reorganizing them at higher levels of complexity.

I will now characterize evolutionary learning and develop its dimensions by contrasting them with those of maintenance learning.

Maintenance learning leads us to operate in a "negative feedback" mode, which means that we constantly move in a single loop of: action, error detection, correction, and action. This type of learning is adaptive and "deviation reducing." Useful as it is (in maintaining an existing state), this type has to be complemented by (evolutionary) learning, which operates primarily on "positive feedback" and brings forth the reorganization of a system. Acting on positive feedback amplifies deviation and change and moves us into a double-loop learning mode (Argyris, 1978). In this mode, we look at ourselves with the openness to change in a "deviation amplifying" mode and transform programs and transcend our systems, based on a new look at ourselves, our purposes, goals, perspectives, modes of operation, and so forth.

While maintenance learning reinforces already learned ways of responding to known situations, evolutionary learning enables us to learn to "anticipate" and develop the capability to face new, unanticipated, and unexpected situations. This type of learning will help us to progress from an unconscious adaptation (to changes) to conscious anticipation.

Even more dynamic features of evolutionary learning are its change-directing and innovative dimensions. Change directing promotes a disposition, will, and determination to shape change rather than just coping with it and often becoming its victims. Learning to be innovative makes use of our creative potential to engage in the design and development of alternative images of future systems, evaluate the alternatives, and implement our designs.

In our current formal educational practices, competition is rewarded and is the fundamental thrust. Evolutionary learning places primary emphasis on cooperation. Cooperation as a mode and method of learning (e.g., team learning arrangements) as well the development of competence in cooperative group interaction (Banathy & Johnson, 1977).

Another significant feature of evolutionary learning is its systemic and holistic thrust. In our conventional curriculum, the learner is placed in subject-matter and disciplinary boxes and is taught in an analytical and reductionist mode. In evolutionary learning, we complement this mode with learning to think systemically, to seek to uncover and understand relationships, grasp the patterns that connect, and see the embeddedness of systems and their interdependence. In systems learning, synthesis is the primary mode of inquiry.

The features discussed above well characterize evolutionary learning and show its complementary relationship to maintenance learning. Let me close my definition of evolutionary learning with a metaphor used by Professor Simon Nichols, who has been directing a seven-year multi-national educational research project on children designing the future. He says that, in our conventional educational mode, we are driving children into the future looking only into rear-view mirrors. The windshield is blacked-out and teachers are doing the driving. Isn't it time to clear the windshield and help students to do the driving?

Acquiring Evolutionary Competence

Education for evolutionary competence provides arrangements and resources for learning ways of thinking, skills, and dispositions that are necessary for developing competence in "driving toward the future." The acquisition of

evolutionary competence enables individuals, groups, organizations, and societies in general to create positive images of their future and "steer" their own evolution. As a further elaboration of Evolutionary Learning, a curriculum in Evolutionary Competence might have four interactive and interdependent domains:

- o NURTURING EVOLUTIONARY VALUES. By emphasizing value creating and learning and reinforcing of such positive evolutionary dispositions as cooperation, trust, benevolence, altruism, love, and the pursuit of harmony, we strive for the development of a universal set of values that generate evolutionary consciousness and an ever-maturing vision of the future--both near and distant. This domain also embraces the fostering of EVOLUTIONARY ETHICS, such as the "self-realization ethics," "social ethics," and "ecological ethics" (Markley & Harman, 1982).
- o COMPETENCE IN COOPERATIVE GROUP INTERACTION. By acquiring ways of thinking, skills, and dispositions that promote cooperative group interaction, we increase our capacities for entering into ever-widening human relationships while concurrently enhancing the development of skills for managing conflict--of all kinds and intensities--at all levels of societal systems in a nonviolent manner.
- o COMPETENCE IN SYSTEMS THINKING AND ACTION. By developing a systems view and a holistic perspective as the primary ways of understanding and thinking, learners will grasp the "connectedness" and interdependence of all entities and their attendant systems, and thereby perceive the notion of "embeddedness" of systems and the interaction of these systems with their environments. Thus, we develop a systems view of the world and attain the capability to relate functionally to the ever-enlarging societal systems in which we are all embedded and, ultimately, to connect with global reality as the basis for an ascension to global consciousness.
- o COMPETENCE IN ANTICIPATORY THINKING, PROBLEM MANAGEMENT, AND SYSTEM DESIGN. This domain of the evolutionary curriculum should include arrangements for the acquisition of skills and dispositions that enable the learner to think and act in an anticipatory fashion and create desirable and positive images of the future. Furthermore, the learner will acquire know-how in perceiving and characterizing problem situations, formulating representations of problem situations, exploring problem solutions, and managing problems. Education in design thinking and action will lead to competence in designing and redesigning systems. More specifically, it will help us to learn to create innovative alternatives of the system to be designed, evaluate those alternatives, display the most promising design solution, and implement the selected design.

Skeptics may question the abilities of human beings--and the societies in which they live--for engagement in the learning experiences proposed herein; but Aurelio Peccei--the founder of the Club of Rome program--expresses the idea of unlimited human potential with the following assertions:

The human being possesses still untapped resources of vision and creativity, as well as moral energies, which can be mobilized to bail mankind out of its predicament; the average person, even when living in deprivation and obscurity, is endowed with an innate brain capacity, and hence learning ability, which can be stimulated and enhanced far beyond the current relatively modest levels. Any guarantees for a promising human future can be sought only within ourselves. What is needed for all of us is to learn how to stir up our dormant potential and use it from now on purposefully and intelligently. (in Botkin, 1979)

This guidance should be taken to heart and kept in mind as we contemplate approaches, strategies, programs, and means by which we can design, develop, and implement evolutionary learning in our educational systems.

Creating Ambient Conditions for Evolutionary Learning

What are the most appropriate conditions for the conduct and enhancement of evolutionary learning? There appear to be at least four, namely: (1) emphasize nurturing (rather than compliance); (2) make an allowance for multiple types of learning arrangements; (3) provide functional contexts in which to learn; and (4) embrace the notion of a broad base of learning resources.

1. Toward an Emphasis on Nurturing

Both evolutionary learning and the development of evolutionary competence require the availability of learning environments and interactions that are nurturing rather than those that demand compliance. Evolutionary learning can flourish only in a climate in which caring relationships are created and

support and trust flows both ways between those who learn and those who foster learning. Our current educational practices--expecting compliance--often engender insecurity and even fear (Boulding, 1981). But nurturing builds confidence and encourages exploration; it creates openness for creativity and evolutionary learning.

2. Introducing Multiple Types of Learning Arrangements

Intrinsically, evolutionary learning and the acquisition of evolutionary competence require that provisions be made for the introduction of multiple types of learning in various educational settings. The repertoire of appropriate learning types that are conducive to evolutionary learning include the following:

- o socially supported individual learning, in which the learner is aided and guided by others (e.g., the teacher) in attending to learning tasks;
- o self-directed learning, in the course of which the learner has, or acquires, access to learning resources and situations that enable the autonomous mastery of learning tasks;
- o team learning arrangements, in which learners cooperate in learning and share tasks in a joint mastery of learning;
- o organizational learning, in the course of which those involved in the organization engage in learning (e.g., double-loop learning, Argyris, 1978), whereby they improve or change their systems; and
- o societal systems learning, which focuses on the development of collective consciousness at all levels of the society, from the family to the global system, and in which participants learn to design and implement arrangements by which their systems are guided by that collective consciousness.

The typology introduced above is envisioned to comprise a set of embedded learning types that are compatible, internally consistent, and reinforcing.

3. Providing Functional Contexts in Which to Learn

Evolutionary learning should be provided in the context of functional real-life situations and applied in relevant systemic environments that are familiar to the learner (e.g., family, school, community, etc.). In conventional educational settings, the classroom is the learning context and relevance is associated with applications in the future, often many years down the road. To become meaningful, evolutionary learning should be provided in the context of real-world functional situations where evolutionary competence can be developed in the context of human activity systems; systems that offer actionable task environments for the learner and in which the learner is a participant. Only in such contexts and environments can we expect the learner to develop the knowledge, understanding, skills, and dispositions that will then enable the development of evolutionary values and capabilities by which to direct his or her own evolution as well as learn to participate in the evolution of systems in which the learner is involved. If the conditions of contextual learning are met, then what is learned is immediately applied in real-world situations and integrated into the learner's thinking and behavior.

4. Developing a Broad Base of Learning Resources

Education is much more than mere schooling (Banathy, 1981). The development of children and youth--as well as the continuing development of adults--meshes intricately with the learning opportunities available in all facets of life. Beyond the boundaries of the school, formal and informal learning opportunities are offered in the home, through the various media, in peer and neighborhood groups, in civic and religious organizations, community and cultural agencies, in the world of work, and in many other every-day

situations. For too long these learning opportunities have been fragmented and separated from the school and from each other. A powerful potential resides in the notion of an alliance of all societal sectors that are interested in and can be involved in education. Evolutionary learning can become the societal thrust that can create such alliance. If formally constituted as a system, such an alliance can identify, integrate, and energize those forces and components of the society that jointly possess a vast reservoir of resources and opportunities that facilitate evolutionary learning and the development of evolutionary competence. What is emerging from a consideration of the task and nature of evolutionary learning, the domains of evolutionary competence, and the conditions required to foster evolutionary learning could alter human evolution and steer it toward a hopeful future for all mankind.

PEACE DEVELOPMENT: A FUNCTIONAL CONTEXT FOR EVOLUTIONARY LEARNING

The critical nature of our current evolutionary juncture is perceived very vividly by our children and youth. They have an intense recognition of the threat of the annihilation of the human race. More than any previous generation, they are truly sensitive about the evolutionary choice of peril of promise.

But many of them do not see a future at all. How does education respond to their feelings of uncertainty, ambiguity, fear, and no hope?

The educational community has been very timid on this issue. Our responses have ranged from attempts to promote a disposition for peace, to helping to understand the nature of the threat, to preparing for a nuclear disaster. None of these are adequate. Only the creation of a positive and

hopeful vision of the future--coupled with a confidence and competence that can enable a realization of that future--can overcome fear and anxiety. Evolutionary learning can nurture the creation of such vision, and the development of evolutionary competence engenders the human and societal capability to engage with confidence in the design of viable systems for a peaceful future. The human activity that embraces all of the above is PEACE DEVELOPMENT (Banathy, 1985).

Peace development is a dynamic process of designing and developing in human activity systems--at all levels of the societal hierarchy--the systemic capacity and human capability to:

- o nurture the physical, mental, and spiritual development and self-realization of all members of the societal groups;
- o extend the boundaries of the possibilities for freedom and justice, economic and social well-being, and political participation;
- o manage conflicts in a nonviolent manner;
- o engage in the design of human activity systems--from the family to the global system--that (re)create and empower these systems as peace development systems;
- o increase cooperation and integration with other societal systems; and
- o participate in the design and realization of a planetary future that works for all people.

Participation in peace development requires a fundamental reorganization of our inner map or reality; away from fear, distrust, and hostility--a change in the way we perceive ourselves, and our relationships with others. Peace development requires the creation of a shared image of the global human future that maintains and respects the diversity of our many cultures and social systems.

Peace development is more than the rejection of the use of force or a simple protest against structural violence and war. Although it is a

necessary condition for change, dissatisfaction with the present state of affairs does not ensure peace, to say the least. If all we are to do is to express our dissatisfaction with the present state of global affairs--as is commonplace today--then the peace issue will stay in the periphery of social evolution, and the action that needs to be taken will be avoided until it is perhaps too late to act.

Peace development should be moved into the very center of the design and development of our societal systems. To be a viable force for change, it has to be mapped into all systems, from the family on to the global human community. It has to be integrated into each and every dimension of our lives. It has to have an economic dimension with a focus on economic justice and integrated development; it has to have a social action dimension, implemented as an increase in cooperation and in the form of nonviolent management of conflicts; it has to have an educational dimension for the development of evolutionary competence; it has to strengthen the dimensions of self-realization ethics, social ethics, and ecological ethics; it has to have an aesthetic dimension of the pursuit of beauty and the enrichment of the quality of our inner lives; and it has to have a political dimension of governance for peace. The purposeful design and implementation of these dimensions--as interactive aspects in all social systems--will provide a powerful agenda for the self-directed evolution of our human systems. It is in this sense that peace development can become a functional context for evolutionary learning and essential curriculum content at all levels of education.

The challenge of ICET is to take leadership in bringing into the consciousness of the international educational community the all important task of peace development and the corollary task of the design and

implementation of peace development education as a context for evolutionary learning and the development of evolutionary competence.

We have a moral responsibility to offer our involvement individually and collectively as a worldwide community of educators and scholars in the service of peace development, evolutionary learning, and the fostering of evolutionary competence. I call upon you to accept the challenge of evolutionary service. Furthermore, I recommend that ICET formulate at one of its upcoming meetings a program for Peace Development Education and Evolutionary Learning.

Creation continues, and we are the only creatures on earth who can make a conscious choice of the direction of our future and take purposeful action for creating a better world for us all.

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