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## Chapter Two

### A CALL FOR NEW THINKING, A NEW APPROACH, AND A NEW STRATEGY

*"To ask larger questions is to risk getting things wrong. Not to ask them at all is to constrain the life of understanding."* (George Skinner)

#### INTRODUCTION

From a review of the educational reform movement and from an understanding and analysis of the sources of the educational predicament of the day, a new insight emerged in Chapter One. This insight tells us that the current "crisis" in education first and foremost is a "crisis of perception." This crisis now calls for a major shift in our "mindset." It calls for "asking larger questions" and searching for answers different from what we have developed heretofore. It calls for new thinking in—and a new vision of—education. It calls for a new approach and a new strategy in educational inquiry. In this chapter, I develop an example of the notion of new thinking, approaches, and strategies.

The new thinking proposed in this chapter reflects my involvement over more than three decades in educational R&D, systems science, and the application of systems and design thinking in real-world settings, coupled with teaching all these in a variety of contexts. This experience yielded organized knowledge, understanding, and possibly wisdom, which suggests that a new design of education should be based on "new thinking" that is rooted in an appreciation of societal evolution and development, and in systems and design thinking.

There are obviously others in the educational reform movement who reach into some other domains for enlightenment and guidance. The point I wish to make is that we have to have access to some source of guidance, and that we should make that guidance explicit to ourselves and others.

In the first part of this chapter, I review societal evolution and seek to understand our individual and collective role in it. Evolutionary thinking and a societal developmental perspective will lead us to ask those "larger questions." Furthermore, evolutionary consciousness and competence are essential conditions of envisioning and creating new educational systems designs. In the second part, I weave into the discussion "design thinking" as part of the emerging new thinking. The application of design thinking in educational reform will help us to create the new design of education we need to bring about. In the third part, systems thinking is introduced as another essential component of "new thinking," and its application in education is highlighted.

#### I. EVOLUTIONARY AND DEVELOPMENTAL THINKING

*"We humans are 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."* (Erich Jantsch)

As we approach the end of the 20th century, the worldwide changes that have been brought about by unrestrained growth, technological advancements, and the knowledge explosion are no longer viewed as a route to a better future for humanity. These changes have occurred at a much faster rate than corresponding changes in our social systems. This discrepancy is the main source of our current predicament in the overall society as well as in various societal systems, such as education. To better understand this predicament, we should examine human evolution. Unlike other living systems, humans are involved in biological AND cultural evolution. Cultural evolution is very recent in the evolutionary time scale, and it is constantly gaining momentum. The more we develop, the more we enhance our capacity for further development. To better understand this phenomenon we should look at the time scale of cultural evolution and the key markers of its various evolutionary stages (Curtis, 1982).

- STAGE ONE spanned over a half million years. Its genesis was the evolution of human consciousness, coupled with the greatest human creation: speech. Speech made it possible for

us to expand the boundaries of human experience in time and space as hunting-gathering tribal cultures emerged and oral tradition embraced the past. Magico-religious myth became the all-embracing paradigm of perception and explanation.

- STAGE TWO emerged about ten thousand years ago, as we entered the agricultural age and developed writing as our new communication technology. These developments brought about the extension of spatial boundaries into city-states and even empires. Through writing, the time boundary was further extended into the past and future. Several major religions and the logico-philosophical paradigm emerged.
- STAGE THREE started five hundred years ago. Print, our new communication technology, enhanced the establishment of nation-states and the emergence of national consciousness. In this age of the beauty of Renaissance and the "enlightenment" of modern science, a mechanistic and deterministic worldview emerged. Science-based technology culminated in the industrial revolution, which greatly extended our physical power through machine technology. In the latter part of the last century, telecommunication brought about the realization of global connectedness and the promise of the emergence of global consciousness.
- STAGE FOUR is our current evolutionary stage. It emerged around the middle of this century. Its genesis is marked by the introduction of the greatest destructive force, the atomic bomb; the creation of the United Nations, a new hope for a global humanity; and the formulation of the cybernetic/systems paradigm and its technological application in the computer, which greatly extended our cognitive power. We designate the new era that has emerged as the "post-industrial society," the "information/knowledge age," the "systems age," the "space age." Table 2.1 displays the key evolutionary markers of the various stages and dramatizes our current predicament.

Recognizing the great disproportion of the time span of the various evolutionary stages—five hundred thousand years, ten thousand, five hundred, fifty years—we realize that the synergic effect of the speed and intensity of developments during stage four has resulted in a perilous evolutionary imbalance (Banathy, 1987). In earlier times,

Table 2.1. KEY EVOLUTIONARY MARKERS

STAGE ONE	STAGE TWO	STAGE THREE	STAGE FOUR
hunting gathering groups	agricultural societies	industrial society	post-industrial society
HALF MILLION years	TEN THOUSAND years	FIVE HUNDRED years	FIFTY years
speech	writing	print	cybernetic technology
wandering tribes	communities city-states	nation-states	potential of a global society
magico-myth paradigm	logico-philosophical paradigm	deterministic scientific paradigm	systemic paradigm
survival technology	fabricating technology	machine technology	intellectual technology

when societal evolution was rather slow and gradual, it allowed time for the various systems of the society to co-evolve and keep a well-balanced space across all systems of the society. The intellectual and social mechanisms of attaining such a state were adjustment and adaptation. During the last hundred years, however, mankind has experienced an unleashing of unprecedented scientific, technological, and material advancement. In the first part of this century, we were still able to manage change brought about by those advancements on acceptable terms. During the last several decades, however, the technological revolution, while giving us power, earlier unimagined, has accelerated to the point where we have lost control over it. We have failed to match the advancement of technological intelligence with an advancement in socio-cultural intelligence and wisdom, which are required to give direction to and guide technological developments for the benefit of all mankind (Peccei, 1977). The development and

nurturing of such intelligence and wisdom will be proposed as THE key challenge to education. (Today we are still preoccupied—single-mindedly—with the promotion of technological intelligence.)

Furthermore, while earlier we tended “to view change as an attribute of reality and see the world as changing,” we now “understand that the world is itself but a moment in a more fundamental process of change” (Morgan, 1986, p. 234). Understanding such a change in the nature of change tells us that adaptation and adjustment are NOT adequate anymore. Rather than adjusting to or adapting to changes, our systems now have to co-change and coevolve with their constantly changing environments. The mechanism for this kind of change is ongoing design. We shall now examine how evolutionary consciousness enables and fuels the creating process of design.

#### THE POWER OF EVOLUTIONARY CONSCIOUSNESS

In evolution, the most advanced state of existence is human consciousness. It is expressed in its highest forms in those who are 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 to shape change. Evolutionary consciousness empowers us to collaborate actively with the evolutionary process and use the creative power of our mind to guide our systems and our society toward the fulfillment of their potential. Salk (1983) remarked that evolutionary consciousness can motivate action toward giving direction to our future by consciously guiding evolution, provided we have a clear vision and image of what we wish to bring about. Conscious evolution, says Jantsch (1981), provides a sense of direction for cultural and social development by illuminating it with guiding images. And the faster we go—as we do at our current evolutionary stage—the further we have to look for images to guide our movement. I am reminded of Csanyi (1982, p. 427), who said, “Evolution on earth, and within it the history of mankind, is a unique story,”...“man can create his own evolution, choose his own history, and this is his freedom.”

The human race has profoundly changed the parameters of the evolutionary process. Our unlimited capacity for learning and the explosive rate at which we produce knowledge and design artifacts and systems have had an extraordinary—and often unintended—impact on societal evolution. The question that confronts us is: For what purpose are we going to use this limitless capacity for learning and our creating power? We can use them to create a better future and

\* give a hopeful direction to societal development. This, however, is dependent on our meeting four conditions (Banathy, 1989): (a) the development of evolutionary consciousness; and based on it (b) the creation of guiding images for the future; (c) the acquisition of competence needed to design our systems based on those images: and, (d) the application of this competence in designing our systems. It is through this process that evolutionary images can be transformed into societal development. What follows is a description of how this transformation works, how to apply the intellectual technology of systems design in societal development, and in the design of systems of learning and human development.

## II. DESIGN THINKING AND DESIGN ACTION

*"Intentions are fairly easy to perceive, but frequently do not come about.*

*Design is hard to perceive. It is design and not intention that creates the future."*

(Kenneth Boulding)

Kenneth Boulding's admonition is surely on target in regard to the current reform movement, which has produced a large number of sets of intentions without considering the design of systems that can realize those intentions. Most recently, the States' governors presented a set of ambitious goals to be attained by the end of the century. They also intend to present some strategies by which to approach these goals. Rephrasing Boulding, goals and strategies are easy to perceive. But, it is design that creates the system that enables us to attain those goals and carry out the strategies.

In evolution, the most advanced state of existence is consciousness. It has a self-reflective cognitive aspect and a creative aspect of a sense of shaping the future. These two aspects are manifested in two complementary and recursive functions (Banathy, 1988b).

SELF-REFLECTIVE CONSCIOUSNESS is contemplating the here and now. It creates an image—a cognitive map—of the self, the world around the self, and one's role in the world. Through this process, individuals, groups, organizations, and societies make representations of their perceptions of the world—and their understanding of their place in the world. They map "WHAT IS" in their individual and collective minds. Such a representation is implicit in the mind. It can be inferred from the behavior of the map makers, and it can be made explicit by its expression through a variety of mediations. These maps are "alive." They are created, confirmed, disconfirmed, elaborated, changed, redrawn...