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# Future Education and A New Epistemology

It has become increasingly clear that our current cultural crisis — manifested in material forms such as pollution, depletion of natural resources and ecological imbalance — is rooted not only in our technological short-sightedness but more basically in our philosophy, attitudes and cultural orientation. These are becoming obsolete. It was almost 2,500 years ago that Greek philosophers Anaximandros, Xenophanes, Anaxagoras and Sophists laid the basis of the Western logic which Plato and Aristotle constructed. This logic is basically unidirectional, uniformistic, hierarchical and classificational; it fosters competition and quantitative thinking. The realisation of the inadequacy of this logic has led an increasing number of people in our society to search for and experiment with new kinds of philosophies and logics. One distinctive pattern of logic has already emerged and many more will undoubtedly be forthcoming.

The hippy movement of affluent youth, the ethnic movements of the oppressed minority groups, and the ecology movement which finds supporters among both conservatives and liberals, are all converging to a mode of thought opposed to traditional Western logic, indicating the beginning of an *epistemological revolution*. Here is the contrast between the traditional logic and the emerging mutualistic logic.

*Traditional Logic*

unidirectional  
uniformistic  
competitive  
hierarchical  
quantitative  
classificational

*Emerging Logic*

mutualistic  
heterogenistic  
symbiotic  
interactionist  
qualitative  
relational

Mutualistic logic is not new. It has existed for 5,000 years among Asians, Africans and American Indians. It has taken various forms — some dualistic<sup>1</sup> others multi-lateral.<sup>2</sup> It was regarded as “unscientific” until recently. But since the development of the study of deviation-counteracting negative feedback systems during the Second World War<sup>3</sup> and more recently the study of difference-amplifying positive feedback systems,<sup>4</sup> the logic of mutual causality has become scientifically more “modern” than traditional Western logic.

In the present epistemological revolution, the hippies might borrow some ideas from native American Indians and Asians, but there are indications that we will be needing still different types of logics in the future.

### **the “facts” of human nature**

For centuries humankind has travelled along a course of history without apparent need for questioning the course itself. There were wars and there were times of peace. There were political revolutions and there were religious reforms. These were regarded as inevitable and normal events of history stemming from “human nature.” “Human nature” included such basic “facts” as marriage, death by aging, parents’ chronological seniority over their children, and humankind’s “superiority” over animals. Now, however, contraceptives, organ transplants, body freezing and possibilities of extra-terrestrial intelligence, all occurring within the past few years, have challenged these basic “facts” of “human nature.” For example, if a parent is frozen for a later resuscitation, his child may meanwhile grow older than he. Then what happens to the parent-child relationship which is as old as human history and has been considered as “human nature?” Or what happens to “human nature” if each individual can have *both* male and female sexual organs in such a way that self-intercourse as well as intercourse between individuals become possible? The social and cultural implications are beyond imagination.

We are entering an era of discoveries and inventions which not only change a part of what has so far been considered as “human nature,” but also give us the power and the responsibility to use (or not use) them. This is a new Adam’s apple. This time it is not an apple of knowledge regarding good and evil conduct, it is an apple which may transform our bodies,

minds and culture. We may transform ourselves into monsters unfit to survive, or we may attain a new, unknown civilization. Our choice requires some philosophy. The existing philosophies are inadequate for our new task. We must develop new ones.

In the past, the members of a culture did not need to generate cultural goals. In most cases, cultures were either stationary or very slowly changing, and cultural goals were transmitted from the older generation to the younger generation in the process of socialization. Sudden culture change, which did occur from time to time, was merely a matter of transition from one stationary, or almost stationary, pattern to another stationary, or almost stationary, pattern. But we are now entering an era of transition of a different nature. It is a transition from a chain of stationary or quasi-stationary patterns, which people accepted as given, to a period of *perpetually transforming* patterns which depend on people's will and choice. It is a transition between *types* of transitions. This can be called a "meta-transition."

### the new education

In the past, education could aim at transmission of relatively stationary goals and of relatively known means to attain the goals. Education could be considered as information-giving and answer-giving. This type of education is inadequate for people preparing to enter the period of *nonstationary cultures*. We must *unlearn* to expect information on ready-made goals and means. Education increasingly becomes a matter of developing attitudes, abilities and skills to transcend the existing cultural goals and means. It is a challenge to our present systems of logic, science and philosophy. This is education as *trans-epistemological process*.

The type of education we need for trans-epistemological process is different in *goal, methods, form* and *contents* from current education. The *goal* may be proposed as development of the individual's ability to grow out of the traditional logic and explore, discover, invent and reality-test new logics. The *methods* may include:

1. exposure to various existing epistemologies such as non-Aristotelian logics, the nonhierarchical epistemology of Navajos and Eskimos, the Chinese logic of complementarity, Einstein's cosmology, quantum vs. wave theory of light, principle of mutual causality in cybernetics, measurement vs. topology;

2. minimizing psychological dependency upon a single epistemology in order to offset psychological defensiveness toward other epistemologies;
3. development of the habit of questioning established theories and definitions;
4. open-minded examination of what is excluded from the present science;
5. use of the imagination;
6. encouragement of disciplined experiments, data collection and field experience;
7. exercise in inventing new cultural patterns and in elaborating on the details of implementation for such patterns.

### some alarms and excursions

Many students ask whether they would not get confused by learning to think in more than one epistemology. One of the students in a seminar gave a very compact answer to this question: "Being able to think in two epistemologies is like having binocular vision; you can see three-dimensionally, but you don't get confused." This fear of possible confusion, common among students, reflects a fear which is not a fear of invalidation of their own epistemology but is a fear of *de-monopolarization*. Persons who are brought up in a nuclear family system such as a typical American family tend to develop a dependency on *one* theory, *one* truth, etc. This is called "monopolarization."<sup>5</sup>

On the other hand, persons brought up in an extended family or in communal living seem to be relatively free from monopolarization. Monopolarized persons tend to be trapped in one way of thinking, believing that theirs is the "universal" way of thinking. In this respect, Americans are handicapped in preparing themselves for trans-epistemological processes and special methods may have to be developed to facilitate their de-monopolarization.

Release from the trap of old modes of thought has its dangers, however, and pure fantasy without reality testing is not only useless but may be harmful. For example, in a recent workshop of school teachers, one teacher said that a boy in her class came up with the idea of a flying chair and she thought it was wonderful. The teacher did not explore the feasibility of the design of a flying chair with the child. This type of teaching is harmful. It encourages the child to be a wishful and capricious dreamer without the will and capacity for the hard work to materialize the dream. On the other hand, if the teacher explores with the child the

means of propulsion, various possible designs of the engine and, if possible, conducts experiments to test out the designs, then the teaching becomes meaningful and useful in preparing the child for the society of the future.

Another teacher mentioned that children in her class said they see ghosts which grown-ups do not see. She thought this was a wonderful example of imagination. Here again, the teacher should have taught the children to set up experiments to verify what they said. For example, if the children say there is a ghost in the classroom which the teacher does not see, then the teacher can have each child write up a detailed description of the ghost independently from other children, and then have the children compare the descriptions to see if they agree. If the descriptions disagree, then there is little validity to the ghost. But if the descriptions agree, then further tests for spurious factors can be developed. For example, all children might have read the same ghost story and have come up with the same description of an imaginary ghost. One possible test to check this point is to let one group of children read one ghost story, another group a different ghost story, and see how this affects their descriptions of the ghost in the class.

Scientific rigor should not be confused with rigidity. While an emphasis on rigorous reality testing is necessary, the criteria for "reality" should not be too narrow. There is a tendency, among those who have a blind faith in the established form of science, to reject as unreal the phenomena which cannot yet be explained by our present techniques. For example, emotions and feelings are considered as unreal by some of those who define reality as quantity measurable with laboratory instruments. Extra-sensory perception is considered *a priori* non-existent by those who limit perception to events which are manifested in *known* physical forms. Unidentified flying objects are explained away as hallucinations by those who limit flying objects to birds and man-made machines. The history of science abounds with examples of discoveries which necessitated revisions of the previously established laws of science.

Scientific attitude is an open-mindedness toward unorthodox possibilities coupled with rigorous testing. Dogmatic denial, as well as dogmatic assertion, is unscientific. Each possibility must be given an opportunity to be tried out. For example, in the case of children claiming to see a ghost, it is

unscientific to tell them dogmatically that they see nothing. All possibilities, including optical illusion, hallucination, extra-sensory perception, unknown physical or non-physical law, and even the possibility that some animal, more intelligent than homo sapiens, is playing a trick, must be considered and tried out. Each fantasy can be used as a starting point for rigorous (but not rigid) experiments and data collection.

### **book learning and reality**

One serious defect of traditional education methods is that students are made to read books and tend to take books as reality. This has several harmful effects:

Firstly, books tend to isolate students from community and people instead of helping them to interact with people in the community. Community becomes a distant object, and people in it become creatures in an exotic country. Secondly, students learn to fit people into theory instead of learning to develop a theory from direct experience. Theory becomes more important than people. Thirdly, students' perception becomes filtered by the theory, and they may perceive whatever the theory wants them to perceive and ignore whatever is not in the theory. Fourthly, students are prevented from getting the feel for the doubts and the awareness of limitations the researcher himself develops in his own work. For a researcher, research is something which generates a need for further researches, because one finding tells him only one part of the story and it generates more questions than answers. He always feels a need to refine his research further. In this sense, he has an awareness of the incompleteness of his studies. This awareness is developed only by doing research. Students, who are made to learn from books, lack this awareness. They tend to believe the printed research report as absolute knowledge and see research results as an answer, not a process to generate questions.

Getting students' feet wet in the field can remedy many of these tendencies.

### **field experience and community**

There are several ways to conduct a field experience in community. The least effective is that of a tourist, a zoo visitor or an interviewer. Somewhat more effective but still unsatis-

factory, is the method of a "community worker" with an agency role or an organizational affiliation. A more effective way is stepping directly into the streets, into a laundromat, a pool hall, a bar, or a barber shop as an individual without agency role or organizational connection, and meeting people in the community on the person-to-person basis, in order to learn the point of view of the people, not to sell one. With this "walk-in method" the student goes into the community with an attitude of an apprentice being initiated into a new culture. Using it, even young white girls were successful in going singly into black ghettos and learning the ghetto point of view.

Still more effective is the method of trans-spection<sup>6</sup> combined with the walk-in method. Trans-spection is an effort to put oneself in the *head* (not shoes) of another person. One tries to believe what the other person believes, and assume what the other person assumes. For example, if someone claims that he sees a ghost and is scared, you try to visualize his ghost and see how scared you become. If you have questions about his ghost, you ask these questions not as an interviewer, but as someone who visualizes the same ghost. Trans-spection differs from analytical "understanding." Trans-spection differs also from "empathy." Empathy is a projection of feelings between two persons with one epistemology. Trans-spection is a trans-epistemological process which tries to *experience* a foreign belief, a foreign assumption, a foreign perspective, feelings in a foreign context, and consequences of such feelings in foreign context, as if these have become one's own. In trans-spection, a person temporarily believes and feels whatever the other person believes and feels. It is an understanding by practice.

Younger children who cannot conduct field experience can be trained in trans-spection by means of autobiographies. There are many autobiographies with "adult-material" suitable for exercise in trans-spection with an appropriate effort but unfortunately there are very few books for children. More books as well as teaching techniques for encouraging trans-spection must be developed. Education also must initiate children into non-hierarchical mutualistic pattern of life. Cooperation games instead of the usual competition games can be emphasized. Non-hierarchical group activities, mutualistic interactions and latitude toward diverse individual styles should be encouraged. Leadership and a *a priori* division of labor should be discouraged.

## new educational form and style

Education as trans-epistemological process will continue during the whole lifetime of the individual. Therefore its *form* needs to be different from the current one which concentrates on pre-adult education. Olof Palme<sup>7</sup>, Robert Butler<sup>8</sup> and others suggest that "recurrent education" should be institutionalized to allow adults to take time off periodically for education, travel or new experience to widen their horizon.

Heterogenistic diversification of styles in education is also needed. For example, American Indians may set up their own education system appropriate for their cultures. Canada, Denmark and Sweden are much ahead of the United States in this regard. They have education systems designed for, and to some extent *by* Indians, Eskimos and Lapps while the American philosophy and method of education so far has been to accommodate Indians, Eskimos, Aleuts, Polynesians and Micronesians in the education system developed for white children.

We also need "exchange programs" between ethnic and age groups. These programs should not be aimed at standardizing and homogenizing the society, but at improving intergroup respect and understanding and promoting symbiotic intergroup relations.

As for the *contents* of the education, a greater part of education needs to become a *process* of developing the ability for exploration and skills for *self-education* in the student rather than storage of information in the student's head. This part of education will become *less knowledge-oriented*. In some fields of study, for example pharmacology or law, much of the present knowledge-oriented education will remain. But even in these fields, knowledge will be regarded more and more as something subject to constant revision rather than as eternal truth and only at great peril can we ignore recurrent education. We must heed Paul Armer's "Paul principle" which states: "Individuals often become, over time, uneducated and therefore incompetent at a level at which they once performed quite adequately."

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