

THE ROLE OF EDUCATION AND TECHNOLOGY FOR AN EFFICIENT ENVIRONMENTAL POLICY

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As we now approach the 21st century, we must revise our attitude towards the environment. Since the industrial revolution, the gradual progress made by humankind created valuable knowledge and information for handling various problems. This information and knowledge based on the vast experiences of the past seemed to support required education until recently. But none of our societies realized the unexpected changes associated with this great milestone of humankind.

At the beginning of, and also during, the 20th century, being extremely fascinated by the products of the industrial revolution, people did not feel the advent of the ever-growing environmental threat. Many of these problems were not thought of and their destructive scale could not be estimated. On the other hand, technological progress also enabled us to approach various issues that were previously unattainable by conventional means. Today, all of the inhabitants of the world are confronted by extremely serious issues threatening everyone alike.

Our present educational system is mainly based on:

- the superiority of humans and technology over nature and culture;
- more production and more consumption;
- the greater appreciation of material values, but equally great ignorance about non-human nature and spiritual values;
- more individual comfort but ignorance of the poverty of the great masses;
- superficial appreciation for every aspect of life, art and culture; and
- quantity instead of quality in every field.

Very efficient ways and methods must immediately be found to change our attitude towards education and put technology at the service of education if we are to maintain life on this planet.

The problem of humans and nature is not one of providing a decorative background for the human drama, or even ameliorating the grim city; it is the necessity of sustaining nature as a source of life, milieu, teacher, sanctum, challenge, and most of all, of rediscovering nature's corollary of the unknown in the self, the source of meaning.

For centuries, human societies have been trained to believe that the whole universe had been created to support man, who is divine and given dominion over all beings and non-beings. Further, we are trained not to search for unity with nature, but for its conquest.

Due to this attitude, it is widely believed that the world consists of a dialogue between men, women, and God, while nature is a faintly decorative background on the human stage. If nature receives attention, it is only for the purpose of conquest, or even better, exploitation. Exploitation also provides a financial reward to the conqueror. The fact that the model of the world is built on economics and gross national product is the proof of its success.

Perhaps there is a time and place for everything; with wars, revolutions, and the development of continents, the major purposes of exploration and settlement have led to overriding all lesser concerns and concluding in favor of these enterprises, while regretting the wastes and losses related to these events.

The pioneers, constructors, decision makers, and great industrialists who built the foundations for future growth were single-minded. Like soldiers and revolutionaries, they destroyed much in ignorance, but there are fruits from their efforts and we share them today. Their successors, the merchants, in the name of profit, pre-empted the seashore and sterilized the landscape, destroyed the great forests, filled the protective marshes and built the flood plains.

The economists, with some exceptions, were the merchants' minions and together they asked with the most barefaced effrontery that we accommodate our value system to theirs. Neither love nor compassion, health nor beauty, dignity nor freedom, grace nor delight are important, unless they can be priced. If they are non-price benefits, they are relegated to inconsequence. The economics model proceeds inexorably towards its self-fulfillment of more and more disposition and inhibition to life in the name of progress. On the other hand, the

components excluded by the model are the most important for survival.

Over the last centuries the valuation attributed to commodities has increased in range and the understanding of the operation of the limited sphere of economics has increased dramatically. This imperfect view of the world, as commodity, fails to evaluate and incorporate physical and biological processes: we have lost the empirical knowledge of our ancestors. We are now unable to attribute value to indispensable natural processes, but we have developed an astonishing precision for ephemera.

It is obvious that such institutionalized, myopic prejudices will exclude the realities of the biophysical world. We do not seem to consider the interminable dialogues among men for the sustaining sun, the moon and tides, the oceans and the hydrologic cycle, the inclined axis of the Earth and the seasons.

As human societies, we neither know nor value the chemical elements and compounds that constitute life and their cycles, the importance of the photosynthetic plant, the essential decomposers, the ecosystems, their constituent organism, their role and joint mechanisms, the prodigality of life forms, or the genetic pool with which we confront the future.

The early people who were our ancestors, wielded much the same scale of power over nature. They tried to understand the phenomenal world and through behavior, placation and sacrifice, diminished adversity and increased beneficence. This early empiricism remains a *modus vivendi* for many tribal peoples.

Great western religions based on monotheism have been the major source of our moral attitudes and we have developed ideas such as the uniqueness of man. The teachings of monotheistic religions have widely been based on the superiority of the human over the natural. God was described as the image of man and nature was almost the enemy, therefore, declaration of war on nature was inevitable to conquer nature which was thought to create a serious threat to God. With such an approach, one can feel free to increase radioactivity, manufacture atomic bombs, use poisons, pollute the environment and destroy cultural values. Therefore when we talk about the role of education in an efficient environmental policy, it is not enough to revise our formal, professional, or academic education and training programs. We also have to do something about religious teaching, because this is perhaps the widest infrastructure upon which we all place our further education and training.

For this reason especially, monotheistic religions must start emphasizing the interdependence of humans and the environment, abandoning the superior attitude. Besides, not all the individuals of societies have a chance for further education and training to consider environmental issues.

If the highest values in a culture insist that people must subdue the Earth and that this is a moral duty, it is certain that they will, in time, acquire the powers to accomplish that injunction. It is not that people have produced evidence for divinity, but only that they have developed those powers that permit the fulfillment of their aggressive, destructive dreams. Humans can now extirpate great realms of life: we are the single agent of evolutionary regression

If we want to understand the phenomenal world, we should direct our questions to scientists who are concerned with natural sciences. In other words, we must turn to ecologists. From an ecological view, one can see that life is only transmitted by life, then by living, each one of us is physically linked to the origins of life and thus, to all life. Our phenomenal world contains our origins and our history: it is our home. In this sense, ecology is the science of the home.

For this reason, we need a firm ecological concept to create a powerful foundation for our education and training programs. Sometimes, we have to simplify this concept in such a manner that it can be easily understood by the average person, but sometimes it might be highly sophisticated, when we are dealing with complicated aspects of the bio-environment.

Nowadays, it seems acceptable to create communities to defend the common rights of groups of people. Amazingly, most of these communities are based on common economical interests. We personally consider this kind of solution as extremely short-sighted. It cannot be possible to have and maintain wealth, remaining ignorant of the poverty of others. On the other hand, economic wealth of such communities widely depends on the existence and persistence of resources to support them. It is not always possible to find all the resources located where they are wanted. Thus, they might be located outside such communities. Therefore, we doubt the success of such communities that are based on economic considerations.

As a matter of fact, no one can defend the success of economic attempts that ignore ecological concepts and relations, because economic wealth can only be maintained by ecological approaches and solutions. Perhaps it is still not too late to talk about ecological communities instead of economic communities. What is the benefit of having the best economic model if no resource has been left to support it? Or would it have any value if we can hardly find any clean air, water and food? We must keep in mind that the more we pollute, the higher the price will be per unit of basic needs such as air, water and food. In that case we come to think of a revision of our education, training and all professional and academic activities related to economy. On the other hand, we cannot stay ignorant of the joint efforts of various nations, groups, NGOs or international bodies towards environmentally friendly production, and, even more important, towards making consumers aware of eco-products.

At this point, we must admit that universities fell behind schedule. In our opinion, we wasted a lot of time for a proper revision of our main attitude towards every aspect of the bio-environment. Therefore, it is necessary for the universities to prepare themselves to take new roles and responsibilities. The new concept and role of the university such as the International University for the Bio-Environment (I.U.B.E.), due to changing conditions, also increased the responsibility of universities in dealing with vitally important environmental issues. This fact forces us to create a joint basis for our efforts to prepare the required medium for a more conscious attitude.

The time has come to make radical changes in our education and training programs to provide a solution to the missing connections. So far, we can consider universities successful within their limited fields of academic activities, but we might have been over-specialized to provide the required solution for technical and social problems by ignoring the place of the bio-environment within this context. Undoubtedly, no one can deny the contribution of academic institutions to various aspects of life, but have we ever considered the chain reactions or cause and effect relations of our scientific and academic approaches?

As I have tried to explain, so far, humans have used technology to exploit the natural resources and placed all the values on an economic basis. The faster we exploited, produced and consumed, the more we left unforeseen wastes behind. Now we can reverse this attitude and start using technology to monitor the wastes, the hazards and the effects on living and non-living components of the environment and to restore its disturbed balance. For this purpose, we must integrate our scientific knowledge and academic experience with technology. In doing so, we must not lose time because the speed of unwanted and unforeseen development is great. We must establish links between our institutions to exchange information and technology immediately. We must provide opportunities for the specialized groups to come together for the rapid flow of technological information to be used in research and educational activities.

Some of us are specialized in technology, some in special sciences, and some are rich in experience. I do not see any reason why people cannot come together and to seek more concrete solutions. We must also find ways to deal with financial problems related to the implementation of our programs. Our joint efforts can create an important power to convince the decision-makers if we come up with solutions.

Another important thing to remember is that we belong to a different era of technological progress. We are observing the young generation's perception of new techniques and technologies with great admiration. Thus we should rely more on their talent and familiarity with the use of sophisticated technology. Just to give an example, Mr. Ekrem Kurum, a research assistant, evaluated conventional and remotely sensed data in order to identify the resources of the Beynam forest to obtain a pattern for conservation.

In conclusion below are some recommendations on the needed actions:

- use technology to facilitate common awareness of the environment;
- prepare joint programs to encourage public awareness using communication technology, keeping in mind that most people prefer seeing instead of reading;
- revise our economic considerations to establish the required balance between production and consumption;
- change our attitude from material values to non-human nature;
- start learning and teaching to have "less comfort, but also less poverty";
- adopt quality in place of quantity in every field;
- encourage appreciation for every aspect of life and culture;
- find ways and means to put technology to the service of education, training and research;
- keep in mind that learning is a process which occurs early in life, and create every possibility to provide sufficient education;
- recognize the need for global cooperation to attain our goal;
- prepare technologically supported programs related to suit future environmental policies, research and training purposes;
- cooperate with the private sectors to expand environmental awareness and be prepared to solve their problems related to the environment; and
- the faculties, departments, and research centers dealing with the environment must be equipped with all the relevant equipment, laboratory facilities, computer connections, related hardware and software (such as GIS), to monitor, observe, and define the environmental problems in order to find solutions, obtain land, use decisions and complete the planning process, before the uncontrolled and unforeseen development destroys the existing resources.

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