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INDEX

EDUCATION FOR GREEN ARCHITECTURE

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"Have you ever been in communion with a tree? Do you know what it means to look at a tree, to have no thought, no memory interfering with your observation, with your sensibility. . . so that there is only the tree, bnot you who are looking at it?"
- J. Krishnamurti, November 1948

INTRODUCTION

Two aspects of Environmental Education

Environmental education, as we know it today, primarily comprises of two components – knowledge and ethics. A large amount of information is available on the electronic media on environment, ecosystems and environmental degradation, and it has created awareness among all sections of society about problems related to global environment such as global warming, ozone depletion, pollution, etc. In just the last 40 years, vast information has been collated and exists in bits and pieces in collective human memory. It is not clear though whether this vast body of information is capable of transforming the future into a sustainable one.

The second aspect of environmental education is that of environmental ethics. This has existed over several thousand years if not more in India, particularly in religious documents such as the Vedas, and was generally a part of our traditional learning system.

Modern Environmental Education Movement

Environmental education has been discussed at length in several international and national seminars, the Stockholm Conference in 1972 being among the first folloTbilisi conference in 1977 organized by UNEP and UNESCO and the Earth Summit in 1992 with its landmark Agenda 21.

The National Policy on Education, 1986, India states: "There is a paramount need to create a consciousness of the environment. It must permeate all ages and all sections of society, beginning with the child. Environmental consciousness should inform teaching in schools and colleges." In 2005, the Mumbai Board of Education made environmental education mandatory in schools and colleges. These adolescents constitute a large part of our citizenry and it is therefore, very significant, that the education of environment is not only provided to them but delivered in the right manner.

Despite the fact that EVS (environmental studies) has been made compulsory subject in schools and colleges, does it provide the impetus for sustainable growth of society? Is environmental education about environmental problems? What should educators in environment teach and how should they teach them?

Holistic Education in Environmental Architecture

Education like health has to be holistic if it has to serve its purpose of nurturing new ideas and creating vibrant entities. The purpose of education must be to create an equitable, rational and creative society. However, when education is compartmentalized, broken into this expertise and that, it begins to create imbalances in society.

Architecture is a noble profession. Civilizations have been defined by the way architecture is developed. The education of an architect is no mean a task. Yet, how often do we find students joining the profession after 5 years of back-breaking assignments, only beginning to grapple with the reality of learning everything over again? The point is that curriculae in architectural schools are designed focus on creativity of students, when in fact, it is a product of several skills including plumbing, electrical, gardening or landscaping, passive design, energy management, etc. to which little emphasis is given. When designers are capable of using these skills, creativity will be a by-product.

Environment, which is the sum total of our surroundings must, therefore, not be a specialization, but linked intrinsically, at every stage to the education curriculum of an architect. At the end of five years, it must lead to an understanding of the state of our ecology and nature, and equip the students with skill-

sets with which to examine and study it. How does architecture affect biodiversity, and why is biodiversity important? Or, what effect does a building have on the aquifers below it and the ground water? How do trees and fauna contribute to a better habitat, a better environment?

These are pertinent questions that can be answered if only formal education allows students the space to think and learn for themselves. Students must be able to think critically and creatively on every global issue pertaining not just to architectural science or arts, but to philosophy, geometry, language, psychology and social science. Great architects such as Leonardo da Vinci have already displayed this ability and their contribution to humanity, are by far, much greater than non-eclectic professionals.

Experimenting with new methodologies

The one-way lecture delivery mechanism rarely works for more than forty minutes unless the teacher is an extraordinary orator. A number of factors such as duration of learning hours, working up late hours in the night on assignments, and other personal factors decide the attention that a student can give in any lecture. So, no matter how good the lecture, new methods of teaching and learning are required to be developed.

Today, information overload, rather than lack of it, is the problem. Students have easy access to information from various sources such as the Internet, books, newspapers, blogs, magazines, etc. Seminar presentation by students on selected topics could be an exercise through which learning process can be made richer. Teachers need to constantly find new ways which will allow students to think.

Taking students to where the teachers are

There is no doubt that on-site and hands-on learning is an effective method. Students who visit sites, meet and talk to experts, and work with materials themselves, not only comprehend the subject better but have greater and possibly permanent retention. It is well known that Mies van der rohe, for example, worked with materials hands-on, and went on to become the master craftsman and builder for all steel and glass structures in America.

In my own experience, I am certain that those who have observed a waste water treatment plant first hand, for example, can better comprehend and therefore, perhaps, more competent in designing new models.

Learning can happen anywhere – in a farm, on the roads, on garbage dumps – and teachers are not just in classrooms. We must find teachers and take students to them. The humble farmer or a recycler in the slums of Dharavi has, perhaps, much practical knowledge, even wisdom to impart. We must be open and allow learning to happen continually.

Encouraging critical thinking and research

In modern schools, the gap between teacher and student is becoming narrower. Teachers learn as much as students in a teaching session. The greater the ability and wish to share knowledge, the more is the learning. Sharing information is critical. Patenting and classifying information can only lead to egoistic thought. For knowledge, the sky is the limit.

Students must therefore be taught to define words and phrases, to question the source of information and the manner in which analysis is done. For example, there are preconceived notions about what a 'green building' is in everyone's mind, and it is often assumed that they are all the same.

Facts, data, hypotheses in research work, objective and methodology, and finally analysis, conclusions and recommendations – these are critical tools that must be learnt by every architecture student. Framing a research proposal, identifying problems and analyzing data rationally are key to creating research orientation among architects.

Environmental Ethics

There is an endless debate about what is good or bad, wrong or right, and this is the stuff of philosophy. But environmental education requires sensitizing students to not just their environment – the world around them, but to what they rarely see. This need not be done within the classroom. In visits to natural places, we have found that being one with the natural environment creates a definite sensitivity in learners. This can be enhanced with more information, say an audio-visual about the forests, the bird and animal species, soil and water, after the visit. As, Krishnamurti pointed out in his notes, November 1964, "If you are not in communion with anything, you are a dead human being. You have to

be in communion with the river, the birds, the trees and the extraordinary light of the evening..."

Exposure to the real world

A Design Cell in an educational institution can serve the purpose of bringing theory to practise, not only for the students but also for the lecturers and teaching faculty. Further, it allows this to happen in a more-or-less non-commercial atmosphere. Opportunities to implement their theoretical knowledge plays an important role in dealing with barriers that one may face in the real world. It also gives students a perspective about dealing with clients and developing feasible economic frameworks for projects.

Upgrading to modern technology

Use of technology for improving analysis or for presentation must be part of every curriculum. Today, technology has bridged time zones and communication has made the world a global village. Distance learning & E-learning must be explored to give opportunities to everyone irrespective of place, culture, language and ethnic background. Everyone who is interested in learning architecture must be provided the opportunity through these modern technological gadgets of communication. Schools can become virtual classrooms.

Another part of modern technology is building simulation software. For everything from disaster planning to energy simulation to Geographic Information System (GIS), software are available which have revolutionized the way we can analyze geographic elements in space. Students must not only be encouraged to learn these tools but to also understand their application for desired results.

Life-long learning

Finally, it must be instilled that learning does not stop with the end of graduation. It begins there. Learning is a process which must be life-long if we have to be 'sustainable'. We, Homo sapiens, with our unique ability to learn and adapt, can create the world of our dreams. We must constantly find new ways of learning and making it cumulative.

CONCLUSION

The film 'An Inconvenient Truth', which is remarkable in its graphic presentation of our environmental problems, has, in my experience, always left students with a sense of denial. At the end of the session, I have often found students complaining "but what is the solution to all these problems". The fact that the problems exists is never questioned.

Our knowledge must not lead to denial. It must lead to enlightenment and hope. Education cannot be for Degrees alone. Nor can it be to earn a pay check. It is for us to deal with the complex problems, to question the assumptions and dogmas, to challenge the world order and to create a world of our dreams.

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