

An action plan to deal with the issue of deficiency of resources for learning environments

by Professor Stephen Siu-Yu Lau

1. Limits of Development

According to the Federation of World Scientists (<http://www.worldlab.org.ch>), there is a definitive limit of development for cities in their deployment of resources as well as interaction with nature and resources. The aim of sustainable development is to generate a coherency in present and future human-nature symbiotic relationship. Education institutions have a colossal task as training grounds for capable and conscious individuals to implement sustainability for benefits of human societies.

2. Deficiency of means

Equally, there is also a limit of development for virtually all educational institutions that are dependant upon resources and means. Here, deficiency is expressed as a concern in effective ways to acquiring and transferring theories, applied knowledge and practice of sustainability.

In this respect, knowledge of sustainability – theories and concepts should be acquired by teachers initially. The knowledge acquiring process is a continuous learning and updating process as visions of societies and technologies continue to evolve. Secondly, a deficiency lies with a mastery of pedagogies teachers deploy to disseminate knowledge in a systematic manner for optimal learning results whilst stimulates and provokes students' mind.

In essence, effective teaching relies on a good balanced feed of technology and knowledge to achieve high-level learning and thinking. Deficiency of resources and human capital is often the main curse for slackened progress in educational institutions. Deficiency may be compromised by an accumulation of knowledge via the setting up and managing of archives of books, audio-visual records, and other forms of information storage. Also of significant contribution to the reconciliation of deficiency is by organizing workshops, seminars, conferences for exchange of intellectual ideas and debates on ethnical issues. Site visits and case studies are as well an effective means to learn sustainable design and construction. In most cases, deficiency also refers to the availability and maintenance of laboratories for physical measurements and simulation by computer applications.

In a learning environment, there is a priority in the training of minds that are compassionate and understanding about a planetary emergency regarding sustainable development -- the rapid deterioration of our physical environment and depletion of non-renewable resources. It is thus imperative that our younger generation is equipped with a committed and conscious vision and mind to balance technical knowledge and skill, in order to grasp the essential ingredients of a professional person. Speaking about knowledge, it relates to a more abstract training of intellectual capability such as theory, skill, attitude, common sense, awareness and vision of mind, etc. It is crucial for educators to continue to upgrade and improve young minds by advanced skill, superior education, ample training and well shared experience.

3. Compromise objectives

The nature of education is multi-layered foci according to a plurality of needs. Often, this is a dual objective in academia in the output of young people. The first objective is to provide young people with a tertiary education and knowledge base to be a matured and learned person. The second objective is to provide training to satisfy requirements of professional societies. Most education institutions fulfill these combined objectives by initiating a close working relationship with industry partners. As a result, an evident benefit is seen in the availability of knowledge, experience and technology from the industrial partner. University-industry linkage in frontier research is an ongoing activity for most subject disciplines in academia and certainly is a key to future, in an era of resources deficiency.

a. Multi-layered education

In the training of construction management and design personnel, there exists a need for a demonstration of caliber in the discipline concerned when a designer needs to be an eloquent communicator as well as an innovative and problem-solving person. At a societal level, the educated person is expected to contribute in both sciences, cultural and environmental aspects to improve quality of life. A major caliber would be a social attention and care for improving how people live and where to live. Environment protection against pollution, fuel exhaust, energy discharge and intake is also a nature instinct expected of a university graduate. Professional requirements are often a process of solution seeking to a problem stated. The problem based learning (PBL) approach is an interdisciplinary activity that allows the cooperation of professionals from different fields to work together for a mutual agreed solution. In essence, the multi-layered education engages young

professional students with an exposure to technical, cultural, aesthetic and environmental factors that contribute to a sustainable quality of life (QOL). Ultimate concern is about how people live in a harmonious and cheerful way.

b. Hierarchy of Needs

A hierarchical structure of educational needs may be represented by common skills, theory and concepts, design and technology, vocational training, ethics in architectural practice, environment and health, social cultural dimension of QOL, evaluating building performance and impacts on ecology.

4. Stating a concern - world academic institutions in sustainable development

The following is an example of how educational institutions proclaim their support and make possible their contribution in research and development in sustainable development. In most cases, such proclaiming establishes a research organ for deep collaboration with industry and professional partners to promulgate best graduates.

- University of Chicago: Center for integrating Statistical and Environmental Science
- University of Carnegie Mellon: Center of Building Performance and Diagnostics
- Oxford Brookes University: Oxford Institute for Sustainable Development (OISD)
- Holland: International Council for Research and Innovation in Building and Construction
- The University of Tokyo, the Swiss Federal Institutes of Technology, and MIT: Alliance for Global Sustainability (AGS) to develop new, multicultural, strategic approaches to issues in sustainability
- The University of Edinburgh: Centre for the study of environmental change and Sustainability (CECS)
- The University of Hong Kong
- Mega Cities Research Program
- Center of Architecture and Urban Design for China and Hong Kong
- Tokyo University
- Graduate School of Frontier Sciences

5. Developing an action plan for deep collaboration

Deep collaboration is a code word for industry-education joint venture to enable cross-fermentation of knowledge and experience, from both practice and research standpoints. It is pertinent and timely for educators and practitioners to come together in a concerted effort to bring about a revolution in the way we educate our younger generation, and to assimilate them into the reaping world of imagination and ideals.

Workshop participants are invited to discuss and propose action plans to better our learning environment.

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