Chapter 8

Educating Architecture Students for Sustainable and Environmental Responsibilities

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ABSTRACT

Rapidly developing cities are significantly damages the environment and imposes a crucial need for sustainable development education. Higher education institutions must grasp their responsibility towards leading the community to respond to the challenges. Universities shape the minds of future leaders, therefore, students must be genuinely prepared with a deep understanding of environmental issues and sustainable development in both theory and practice. This chapter provides a guide for architecture educators to adopt learning approaches that can improve students’ sense of sustainable responsibility. Potentially, this would qualify students to connect with communities and contribute to solving local social, cultural, and environmental problems.
INTRODUCTION

With the beginning of the twenty-first century, the global concerns have increased due to the accelerating environmental degradation, increase in rates of energy consumption and the depletion of energy resources, global warming, and climate change issues. Researchers and those interested in environmental matters believe that the current situation requires serious action that is not limited to spreading awareness but rather extends to shift to more effective procedures such as developing of architectural education agenda (Dabaieh et al., 2018). The inclusion of environmental aspects and studies in the Architectural programs’ curricula is highly supported by the charter of the United Nations highlighting the responsible role of the architect to maintain ecological and cultural values (UNESCO, 2014).

There is a belief that the current mode of architecture education is unable to address the new environmental challenges with its multiple aspects (James, 2014). Therefore, it became necessary to integrate environmental and sustainable concepts and principles into Architecture programs, curriculum, and courses. Essential topics such as energy consumption and renewable energy have to be deeply studied and developed within the proposed design solutions in Architecture Projects (Keumala et al., 2016; Musil, 2009).

In this context, architecture education has a significant role in emphasizing the principles and practices of environmental and sustainable design to the new generations of architects to recognize the vital impact of architectural design on the environment (Altomonte, 2010).

There are a lot of challenges that would face architecture students upon leaving the university, including floods, depletion of resources, droughts, rising population, and hunger. There is a real need for more innovative and resilient solutions to those challenges. Those challenges need to be approached with different perspectives to result in different outcomes. Therefore, Architecture educators should believe in students’ ability to explore innovative design sustainable solutions (Donovan, 2018).

The architectural program has a unique curriculum setup which is distinct from other university education disciplines. It is designed to produce conceptual thinkers who can handle complex design problems through providing architecture students with the required skills for the core subject, design, and provide the knowledge and professional skills through complementary and interdisciplinary courses. Those courses include environmental science, engineering, arts, computer science, sociology, geography, information technology, culture, political science, and law disciplines.

The concepts and issues of sustainability are not new to Architecture Education in which cultural diversity and local community issues have been included since the 1970s. Additionally, the low energy design was a common term in architecture education in the early 1980s. Green material, bioclimatic design, water use reduction, and recycling became more common ‘technical’ concerns in the 1990s (Mackie & Kagawa, 2007). However, the topics of environmental and sustainable design have been recently integrated into the architectural education programs and introduced in different courses to prepare well-versed architect students in sustainable design practice (Mohamed, 2018).

It is worth mentioning that UNESCO has an initiative for including sustainable development in higher education (UNESCO, 2014). The United Nations declared the period from 2005 till 2014 as a Decade of Education for Sustainable Development, based on a chapter agreement that was developed a decade before in Agenda 21 at the UN Conference on Environment and Development - UNCED. The agreement
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