

Chapter 17

The Development and Evolution of Design Education From Secondary School to Tertiary Education

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ABSTRACT

Design education is interdisciplinary by nature and provides a platform for students to learn different knowledge and skills and then apply them to solve design problems. It is inspirational and innovative at many different educational levels. However, the curricula of design education may not be aligned at different levels. To investigate this issue, Hong Kong is chosen to be the case because of its uniqueness in the development of its design education. This chapter discusses this issue by reviewing the design curricula in secondary school education and tertiary education. This review provides an overview of how students learn design thinking and problem solving in design education. The problems of the transition from one curriculum to another are highlighted. It is suggested that better communication between the curriculum developers is needed to cultivate a smooth transition so that the students of design can enjoy a better learning experience.

INTRODUCTION

Design education refers to the learning and teaching of design at any level. Students have to generate design solutions to solve different kinds of everyday life problems. Sometimes a problem is ill-defined, and students have to define the problem and conduct research thoroughly to understand the key issues underneath. Students have to realize the design solution and make artifacts or prototype to test their design solutions. Problem solving and creativity is the essence, and through the problem solving pro-

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cess, students learn different knowledge and skills, for instance, communication and time management skills, as well as knowledge in language, mathematics, science, engineering and arts. Students have to combine all these skills and knowledge in order to finish a design project (Siu, 2002). The interdisciplinary nature is one of the key characteristics of design education. In addition, the project-based nature of design education also facilitates students to be autonomous and persistent in design processes. As design education plays an important role in fostering students' creativity and problem solving skills, students are often tempted to take risk so that they can generate a more creative outcome (Wong & Siu, 2012). The artifacts that students have to make in design projects provide them opportunities to develop hands-on abilities. Design education, in other words, is able to foster students' cognitive and psychomotor skills and develop possible attitudes in work.

Because of the potential achievement that design education can bring, today, design education as well as other innovation-related learning exists at different levels of education (i.e., K-20 Education). However, as the curricula at secondary school and tertiary levels are developed in different ways in the past and have different emphases, it is questionable whether students are able to transit from one curriculum to another without encountering difficulties when they continue their studies at tertiary institutes from secondary schools. It is thus worthwhile to review how the curricula at the two levels are connected and associated, and to discuss the issue of disjoint if there are any. The disjoint may be due to the complicated structure and the interdisciplinary nature of design education that the curricula are unable to match with each other in every aspect. It is important to implement policy and other strategies so that students can be nurtured gradually under good planning and objectives. The discussion in the chapter are able to raise the awareness of considering the curricula at various education levels simultaneously so that students can experience effective learning through a smooth transition.

In this chapter, Hong Kong is chosen to be the case study of the issue because the curricula of design education in secondary school and tertiary education have their unique characteristics which may not be found in other cities or countries (Siu & Wong, 2011). The specific historical background and the development of two curricula have raised numbers of issues but simultaneously the two curricula harmonize with each other in a certain extent. It would be interesting to view the development and evolution of Hong Kong design education through the transition from one curriculum to another one, and it is believed that the issues are worth for discussions and references. The aims of the chapter are to (1) review the design curricula in secondary school education and tertiary education in Hong Kong, (2) provide an overview on how students learn design thinking and problem solving in design education from secondary school to tertiary education; and (3) discuss the issue of transition from secondary school education to tertiary education.

REVIEW OF THE DESIGN EDUCATION CURRICULA IN HONG KONG

Design Education at Secondary School Level

Design education at secondary school level started in early 1980s (Siu & Wong, 2011). The school subject of design education was Design and Craft and later renamed to Design and Technology (D&T) for junior secondary school level. Until 2000, D&T has become a school subject which "aims at providing learning opportunities for students to develop the technological awareness, literacy, capability and lifelong learning patterns that they need to live and work effectively in an ever changing technological society"

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