

Chapter 11

The Curriculum Development and Project-Based Assessment of Design Education in Singapore and Hong Kong Secondary Schools

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ABSTRACT

Project work is an essential feature in design education and curriculum and the major assessment that students need to work on. Project-based assessment is one of the promising approaches for assessing students' performance in design education. It is also the appropriate pedagogical approach for teaching design. In project-based assessment, students need to finish several tasks, such as identify a problem, research on relevant materials, suggest possible solutions to the problems, realize the chosen solution, make the artifacts and evaluate it in a project. It is natural and indubitable in the design classes – teachers and students would probably accept it without any questions. However, in the recent years, project work in design education at secondary school levels has been developed in some new directions that it is significantly differentiated from the traditional project work in the past. It is then interesting to review the historical development of secondary school design education and understand the practice of project-based assessment. The design curricula of Singapore and Hong Kong are chosen for case study and comparison in this chapter. Through examining the similar background of curriculum development of Singapore and Hong Kong, the comparison and the discussions of the chapter also highlight some issues and the future development of curriculum and assessment in K-20 education of both places. The aims of the chapter are to (1) review the history of curriculum development in Singapore and Hong Kong secondary school design education; (2) review the project-based assessment in the design curricular in both places; and (3) discuss the general and specific issues of curriculum development and project-based assessment based on the reviews.

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INTRODUCTION

Design education in secondary education involves activities and projects which enable students to realize their conceptual ideas to tangible products. Students need to apply design theories learned in solving problems in the projects (Siu, 2002). Students need to finish several tasks, such as identify a problem, research on relevant materials, suggest possible solutions to the problems, realize the chosen solution, make the artifacts and evaluate it in a project. Project work is inevitably one of the essential features in design education and curriculum. It is also the major assessment that students need to work on. Through finishing the project, students can learn different knowledge related to their project. They are self-driven and also the active agent in the learning process (Mioduser & Betzer, 2007). Students are guided under the supervision of the teacher, and it is a teacher-facilitated approach to learning (Bell, 2010). Simultaneously, teacher is able to assess students' performance and give appropriate and prompt advice to them. Project-based assessment is one of the promising approaches for assessing students' performance in design education. It is also the appropriate pedagogical approach for teaching design (Drain, 2010; Mioduser & Betzer, 2007).

Unlike the projects in other subjects or at the university level that students need to take the initiative to develop and identify a question or a problem, in the design classes at secondary school levels teachers are supposed to provide a project title with a design brief for students. The design brief describes explicitly what kind of product or artifact that students have to make in a given period of time. This practice seems nearly natural and indubitable in the design classes – teachers and students would probably accept it without any questions. The silent consent on doing a project in design classes between teachers and students is not without any basis. As a matter of fact, the historical background and development of design education is one of the major reasons for the silent consent.

In the early stage of curriculum development, people liked to consider school subjects associated with design, craft, and technical contents, which are elements of the design related subjects in today's terminology, as "technical subjects" (Siu, 1994; 2002; 2008; Turner, 1989). The major purpose of design education at that moment was to provide prevocational training for students to learn manual work for the industry, in parallel with the industrial development in the early 20th century. Unsurprisingly, the majority of the activities were to produce craft work in solving a real life problem. Activities now in design education, which are very similar to the antecedent, always have a real life purpose, for example, designing and making a device or an object to solve a problem. The teaching and learning style was very similar to the apprenticeship that the industry was practicing. The act of making an object to solve a problem has naturally developed to the projects practice in the current in design education nowadays.

In the recent years, project work in design education at secondary school levels is developing new directions that are significantly differentiated from the traditional project work in the past. For example, apart from the design-and-make projects, some educators advocate "design-without-make" project (Barlex & Trebell, 2008), and this concept has also infused into the assessment of public examination. Students have more freedom in choosing their preferred way in presenting their ideas which fit the project brief. The emphasis of the design projects is also shifting from the product to the process. Portfolio, which is a collection of documents recording all thinking processes in the forms of writings and drawings in a design project, has an increasing importance in the assessment of the design project in design education at secondary school levels.

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