Quality Evaluation Tool for the Design Studio Practice

A theoretical background

Ahmed Abdullah Bakarman

Associated Professor, College of Architectural and Planning

King Saud University, P. O. Box 57448 Riyadh 11574, Saudi Arabia, Bakarman@ksu.edu.sa

Abstract: Architectural education aims to teach students a combination of design skills and professional knowledge. The design studio, as a melting pot for these skills and knowledge, needs a quality evaluation tool to assess students' achievements, and provide design tutors with the evidences that students are ready to proceed to the following stages. This research aims to create the theoretical base for the required tool, and explore the nature of the educational evaluation tools. In order to create such base the research explores different models for determining the main themes of the new tool to look at in students' learning/ teaching activities. In addition to that different means of evaluation are explored and investigated in order to choose the appropriate one for the QET.

Keywords: Architectural design, Design education, Evaluation.

1. Introduction

Architectural education is a process which requires teaching students a combination of design skills and providing them with the architectural knowledge that will allow them to practice architecture professionally. The most important component of this process is architectural design which is conducted within a learning environment called 'Design Studio'. This importance stems from the fact that design studio, as a learning environment, is a 'Melting Pot', in which different skills and knowledge, that have been accumulated and acquired during the school's years, are integrated and interrelated. Naturally, architectural education is a cumulative process where students get to master design skills and acquire the needed professional knowledge over a long period of time; therefore, continuity is an essential characteristic of this type of education. During the course of the school program, the design tutors have to ascertain that students have acquired the provided knowledge and mastered the offered skills, which constitute the students' achievement, to build on what have been achieved earlier and proceed to the next stage(s). As a result of that, the need for a tool to evaluate and asses' students' achievement, mainly in the design studio, is essential not only to guarantee the continuity of the design studio practice, but also

to identify the un-mastered parts and aspects in students' learning/teaching outcomes.

This research, as the first part of a series of researches, aims to create the theoretical base for such tool, which is called "Quality Evaluation Tool for the Design Studio Practice, QET" that will be followed by the second part which constitute the format of the QET and measure its ability in an experiment run in a real design studio. The QET's scope is to measure the quality of students' achievements in the design studio. Therefore, the following parts will investigate the design studio's themes, in which QET has to measure and determine the evaluation means for such themes.

2. Criteria for Creating an Evaluation Tool

In order to create the QET's theoretical base, a general criteria for curriculum- evaluation model has been identified [1]; in which any evaluation tool has to match and fulfil. As this model is for education in general, some of the criteria may not be applicable for architecture education, and not match the nature of the design studio practice. In general, it provides us with a sort of sense for the characters of the QET. The applicable ones are:

1. The tool can be applied to all levels of the curriculum.
2. It has to make provisions for assessing all significant aspects of curriculum.
3. The model has to be responsive to the concerns of the involved persons.
4. The model has to be goal oriented, emphasis objectives and outcome(s).
5. It has the ability to assess the un-intended efforts.
6. It has the ability to assess the un-testable aspects as aesthetic and qualitative aspects.
7. It has to use both qualitative and quantitative methods for gathering and analyzing data.

3. Models for the Themes

The first step toward creating the QET is to determine the themes that the tool will measure and assess [1]. These themes have to be valuable for the involved people, i.e., students and teachers, and their determination has to emerge from them.

Therefore, and for the sake of building the theoretical base of the QET, this research could explore different models for determining the main themes in architectural design education, and defining the criteria to choose the appropriate one.

The first model has emphasis that the main three themes in architectural education are [2]:

1. Attitude of mind: this theme concentrates on building student's personality and emphasizing the role of the design tutor in building student's character as an architecture student. As this theme is behavioral oriented, the studio environment has an important role in introducing students to this environment and be an active participant.
2. Acquiring knowledge: this theme concentrates on how students acquire the knowledge and which type of knowledge provided, in addition to the environment in which these knowledge are offered.
3. Development skills: According to this model, this theme completes the triangle of the architectural education and emphasizes the most important aspect-the design skills. The design and the professional skills are the core of the architectural education and students in the design studio are exposed to different types of skills such as perceptive, technical, administration, co-ordinate, and planning skills [2].

In general, the first model emphasizes three themes starting with the behavior aspect in which a student builds his/her personality and obtains the characters that could allow him to be an architect. The second theme concentrates on the acquisition of the knowledge and the type of knowledge and the means through which he/she obtained. The last theme emphasizes the development skill and the type of skill a student has to master in order to be a good architect. If the QET adapts this model, it has to be able to provide design tutor with the evidences that students acquire and master these aspects in order for them to proceed to the next stages of their education.

The second model divided architectural education into four levels [3]:

1. Basic skill: Students at this level master the basic skills that allow them to understand architecture and familiarize themselves with the nature of the profession.
2. Professional competence: this level of education concentrates on preparing students for the professional practice, and exposing them to different aspects such as social, functional, environment, and technical context.
3. Value system: the theoretical and ethical dimensions are emphasized at this level.
4. Conjecture: as the highest level, the conjecture level reflects the development of the discipline of architecture, exploratory research and theoretical discussion.

In creating the QET, we have to look at these themes not as levels of importance, but as levels of hierarchy during the school years. This hierarchy of aspects draws a border line between stages that could allow the QET to direct its evaluation activities toward specific themes at different stages in architectural education, and utilize different criteria to assess each one.

After presenting the models for determining the themes for the QET, we have to determine the means for choosing the appropriate model. The selection of the model has to be based on the school's categories [4]. In this, the architectural schools have been categorized into four types, and each type has different aims and themes, which in general reflect the schools' goals and objectives of each type, and their graduate characters. The schools' categories are [4]:

1. Academic / Technical school: this emphasizes the design project and technology.
2. Academic / Arts school: This concentrates on the design project and theory.
3. Vocational / Technical school: This concentrates on the practical understanding.
4. Vocational / Arts school: In this the design is central.

4. Means for Evaluating Students' Achievements

After determining the themes for the QET, the second step is to select the appropriate means for assessing students' achievements. The assessment means for educational purpose spans from unrestricted to restricted freedom of response allowed [5], which include:

- Observation: this means has the ability to capture the attitude and behavior aspects which may not be captured by other means, in which these aspects need direct contact with the scene. In addition, it reflects what were actually experienced and felt [6].
- Interview: this means has the ability to record and clarify specific aspects not belonging to the behavior ones,

or any aspect that may need more clarification. Depending on the type of the interview and the question, the responds could have different interpretations [7] [8].

- Questionnaire: this means has the ability to collect general opinions about some aspects through using the close ended questions [9].

- Exams: this is the traditional means for assessing students' achievements in acquiring the knowledge, and this could have different formats such as extended answer, short answer, and multiple choices [5].

- Design review: as this means is specifically for design education it is not included in the "AIA's" list [5]. It has the ability to reflect the students' achievements in mastering the design skills [10] [11].   Although this means had a long history in architectural schools, yet it has not met the expectations to reflect what students actually have acquired or obtained [12].

5. Educational Environments

The last part of the theoretical base for the QET will concentrate on the means through which the QET's themes are offered and provided, educational environment. Each one of these means allow students to acquire different types of knowledge, either tacit or explicit [13], and master different types of skills and attitude. These themes for acquiring knowledge and mastering skills could include [2]:

1. Formal lecture.
2. Group discussion.
3. Library reference, general reading, and filing.
4. Visiting.
5. Seminar.
6. Tutorial in design studio.
7. Class teaching and students talk.

6. Conclusion

At this stage of the research, which aimed to establish the theoretical background for the QET as assessment tool for students' achievements in the design studio practice, the scope of the paper is fulfilled. Based on the school's category, the QET can be formulated and a combination of the evaluation means can be created. In addition to that, and based on the nature of the architectural education in the design studio, the QET has to be a comprehensive one having the ability to adopt itself to match the variety of the architectural programs and the levels of the students, in addition to adopt different types of themes.

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