Investigation in Effective Assessment Models In Architecture Design Studios
National University Malaysia as Case Study

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Abstract- Nowadays Assessment is known as a part of education process and not as a distinct part. It has an important impact on learning process. Assessment of students’ achievement is an important factor in encouraging students to adopt deep learning strategies. In order to improve education and student learning, assessment must be appropriately designed and implemented. In this paper the evolution of evaluation and assessment in architecture and grading policies will be literate. Then by surveying students feelings about each of these policies and models the scheme of effective assessment model and its traits base on students preference will be given.

Key words: Architecture design studio, Criteria based model, Evaluation, Effective Assessment.

INTRODUCTION

History of architecture education reveals that regular critique and judgment is an inseparable part of studios. There are different type of evaluation and assessment for architecture studios. Such as Individual Critique, Formative Critique, Summative Critique, Peer Critique, Public Critique, Panel discussion [Utaberta & Hassanpour, 2010] Ultimate goal of all these crit sessions are to enable students to assess their own projects and in this way they become expert in developing their own ideas and designing.

Individual crit sessions which is known by desk crit is one by one discussion that students feel more relax to show their project, in absence of looking eyes. Also these sessions will not over with grades.

There are some sessions may involve other students in a discussion or panel to present their project for lecturers and classmates to experience public speaking. Such sessions also can over with grades or just the comments that will be given to students. done researches by sydler in 1971 and miller and Parlett in 1974 has shown that what will influence students most was the sessions which will lead to assessment and grades. The jury practice used as evaluating system for student’s project behind closed doors and till early of 19th century that Ecole Beaux School changed this manner to open system remained.

The German and Swiss models between 1910 and 1930 emerged to replace the beaux school model but most of habits and mechanisms continued. And since American architectural education systems are influenced by European tradition the evolution of evaluation system can be found in western literate documents. Investigation in published studies about jury sessions shows that western countries documented the evolution of jury sessions as well. First studies were done by carlhian 1979 and 1980, chafee 1977, kostof 1977, middleton in 1982 anthony 1987 1991, salama 1995.

All of these papers books and reports introduced jury as most important part of evaluation process with improving student’s performance and promoting discussion as its purpose. They also talk about negative connotations (AHD 1994, Ashraf 2010) and the contrast of this to purpose of assessment.

Many of researchers like Anthony1987, salama1995, Dutton 1987, sara2004, Ashraf 2010, Utaberta2010 are agree in this view that in inherited jury model the critique is subjective and comments are spontaneous. Absence or lack of criteria in appraisal models would make the assessment unpredictable and unfair, at least in student’s perception.

Diverge of jurors approach in evaluating projects, uninformed students about criteria and expectations beside common stress and lack of enough time, definitely will lead to ineffective assessment. Sadler 2005 mentioned two obligations for tutors and teachers base on typical policies. First is to tell students clearly about the proposed assessment program and the weightings of the various components. Second is to provide timely helpful feedbacks. Also he argued about the two ideals that have strong educational and ethical effect.
1. Students should be graded by the quality of their work alone.
2. At the beginning of a course study students deserve to know about the criteria

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It is obvious that the main concerning in assessment model base on most cited reference, mentioned above, is about grading and feedbacks. So it is axiomatic that to trace an effective appraisal model we have to study Achilles heels.

To reach this target first we will explain about design studios program and the traits of common evaluation and assessment models that are implementing in architecture faculties all around the world. Then we will investigate the effect of these models on our case study and in this way will try to trace a scheme on effective appraisal model from student’s expectations and perceptions.

**MATERIALS AND METHODS**

From beginning of each semester that a problem has introduced to students, development of the idea and design in under control of studio lecturers and given comments will be lights of path.

The common format of given comments is oral. Students need to listen carefully and grab the ideas and perspectives of lecturer or reviewer about his /her project and use them for particular aspect of the problem. Students are expected to more fully explore and test these options and suggestions by revisiting his or her solution. The studio instructor will then review the outcome of the student’s revised solution suggesting further changes and refinements. This process of revisiting and revising alternative design solutions is referred to as design iteration. The student may produce dozens of design iterations before the final design solution is arrived at. Concurrent with the formal studio critique, students will informally critique each other’s work throughout the semester, and learn various design skills and drawing and model construction techniques from each other necessary to accomplish a particular representation of their chosen solution.

The interim or midterm crit is often seen as a warm-up to the 'final crit' where students present their best solution to a small jury that includes other studio instructors from the school of architecture, practitioners, even surrogate users and clients intimately familiar with the design problem in practice. Final submission can be held on two different types. One behind closed doors and another one open to students.

When the jury is behind closed doors students would not permitted to enter and explain about their design and ideas unless the jury ask them to enter and answer to questions. But in second type students will have a chance to restate the problem, outline the issues being addressed to solve the problem, present their solution or alternative solutions, and describe the process by which they arrived at a tentative solution. And finally the marks will be given to the projects.

Grading models which have used by instructors can be categorized to three types.

1. Holistic models
2. Comparative models
3. Criteria based models

There are three methods and grading models designed and implemented by pioneer universities in architecture education and followed by other universities around the world. Step by step by improving the definition of education and assessment these models have improved and changed.

In holistic appraisal model the grade is given to overall project and not contaminated to other projects and grades are base on interpretations which clarify the attainment amount of course objectives.

In comparative model student’s projects will compare with each other. In fact jurors judge the quality of projects holistically then they rank the projects. Grades follow in descending form best project to worth one.

Criteria are attributes or rules that are useful as levers for making judgments. In architecture design studios, criteria based model grades are required to evaluate student’s achievement in fulfilling juror’s expectations. These expectations can be explain in different forms. We name these expectations as course objectives. The objectives are assumed to provide the basis for the criteria, but exactly what the criteria are is in essence left undefined [Sadler, 2005]. These objectives should be known by instructors, students and especially external jurors. Because invited jurors have their certain tendency and assumed objectives that would be the base of their grading. This incoherency may lead to variant in given marks by different instructors and students dissatisfaction.

There are different grading models implemented by universities which are criteria based [Biggs, 2005]. Grading models may be designed to apply to whole course or alternatively on specific assessment tasks and some can be appropriate for both. For all of these grading models, the interpretation of criteria is same with the general definition which defines criterion as a distinguishing property or characteristic of anything, by which its quality can be judged or estimated, or by which a decision or classification may be made. All of these models are trying to make a clear connection between the achievements of course objectives and given grades, without reference to other student achievements.
One of the implemented methods under this way is grading system based on marking forms. These grading criteria sheets [Montgomery, 2003] typically do not map in any simple way into course objectives. They are scoring rubrics which shows some tasks and their marks portion. These tasks outline some of the knowledge and skills students ideally should be able to exhibit by the end of the course. For instance, 3D model and executive details, boards, oral presentation as tasks and 5 mark for each of them.

The given mark is based on the quality of presented documentation. This holistic method cannot explain about the expected details in each task and will leave the doors open to enter the personal opinions and subjective decisions in evaluation. An underlying difficulty is that the quality of performance in a course, judged holistically on the basis of the quality of work submitted, may not be determinable well with the attainment of course objectives.

One of the most comprehensive types is a model which specifies qualitative criteria or attributes. In this model depends to the assignment or project which is going to be assessed, an evaluation sheet will be prepared. And due to project objectives and expectations different tasks are defined. These tasks are based on some practical necessity and some personal standards aligned with course objectives. These tasks will create policies for assessors to intend to take into account in judgment. Rubric of these tasks are relevant to the project can be as follow:

1. Critical Explanation
2. Logical Development
3. Proposal and recommendation
4. Oral and Graphic Presentation

Segregating evaluation extent to more tasks will increase student’s opportunities to show their capabilities and sufficiency and gain more chance to get better marks. Since not all criteria types are same, there is no necessity for the number of criteria to be same in different tasks. In fact these are subtitles which are expected from students to do, in order to elaborate the borders of course objectives for assessors.

For instance in figure 1 we can see tasks with some of their criteria which have defined by related instructor base on course objectives and implemented strategies in studio. Each of criteria is included in marking grid. According to main focus of education process in certain period, different priorities with different attention portion will be dedicated to each objective. This kind of precedence will import to assessment criteria and evaluation sheets [Montgomery, 2002]. Therefore each task would have dedicated percentages to show the major and minor objectives and grade amount. Figure 1 illustrates this type of grading model.

<table>
<thead>
<tr>
<th>Fail</th>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little or no evidence</td>
<td>Beginning</td>
<td>Developing</td>
<td>Accomplish</td>
<td>Example</td>
</tr>
<tr>
<td>Graphic presentation</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical explanation</td>
<td>40%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logical Development</td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposal and recommendation</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Grade</td>
<td>100</td>
<td></td>
<td></td>
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</tbody>
</table>

Fig. 1: Sample of evaluation sheet in UKM.
Since students perform in continuous path, the result of their performance just can be revealed in continuum that can be divided between satisfactory and dissatisfactory. So it is needed to define some qualitative levels to apply as a norm to the assessment. The assessor does not need to make separate decisions on a number of discrete criteria, as is usual list form. Such as little or no evidence, beginning, developing, accomplish, exemplary.

However these descriptions are very helpful and effective in appraisal system but finally the qualitative assessment should transmit into grades and marks. Assessment and grading do not take place in a vacuum. Quality of student’s work together with interpretations of such judgments can be known as comprehensive model in judgments. So alternatively, a simple verbal scale could be used for each criterion such as Fail, Poor, Average, Good and Excellent but in this type verbal grade description applies to given assessment task, with a separate description for each grade level (as mentioned before). So each list of criteria can be elaborated into a marking grid. Finally components of grades will be weighted before being added together to reflect their relative importance in the assessment program.

Each of these aforementioned models has pros and cons but student’s perceptions and their feelings to assessment and grading models as one of the important members of education process still remained unregarded and should be investigated.

So we implemented the named assessment models in second year design studio in National University Malaysia as case study. All 23 students (14 female, 9 male) were informed of the purpose of the study. In different stage of studio class, these three models of assessment implemented in submission days.

Upon receiving their individual comments and crits from juries, student was asked to evaluate the assessment method. Students were given smiley faces to more easily explain their feeling on effectiveness of implemented assessment model.

These smiley faces were completely equal to likert scale one to five which one shows minimum satisfaction level and five is the pick .fig.2.

![Fig. 2: Given smiley faces to students and their equivalent in likert scale.](image)

After surveying student’s feelings and idea about each of implemented models we prepared an interview with each of them and the results were investigated to study the student’s expectation and idea from assessment compare with most cited scholars to trace the traits of effective assessment model.

**RESULTS AND DISCUSSIONS**

Figure 3 reveals the result of student’s feelings after a holistic assessment. As it is obvious the dissatisfaction on comparative system is in high percentage and minimum is for criteria based model. 48 percent chose happiest smiley and more than 55 percent chose the happy icon.

It shows that comparative model is not effective model to students. In interview 81 percent of students (18 from 23) mentioned that in comparative model the students who were more skillful in graphical design get better marks in spite of may be less works during the semester of problems in their designing.

This is completely accommodated with scholar’s idea. They believe that comparing students with each other is unfair, because students are from different backgrounds and talents [Utaberta & Hassanpour 2010].

Students deserve to be graded on the basis of the quality of their work alone, uncontaminated by reference to how other students in the studio perform on the same or equivalent tasks, and without regard to each student’s previous level of performance [Sadler, 2005].
In comparative and holistic system, the holistically attitude to the projects judgment leads to neglect Student’s Creativity and abilities in some contexts. Students can’t be aware of their weak and strong points and by this way and they can’t do any effort to increase their marks and just lucky students who are skillful in graphic design are able to impact jurors for better grades.

On the other hand making pair-wise comparisons just among small set of students submissions is possible. It will be very difficult in large amount of projects and students.

When we asked students about their preference for jury days they believed that criteria based model is much better because in this method there is a same criteria which is same among jurors and they are aware of it. So they can work on parts that they are more talented or skillful and in this way they can get better marks.

They also added that using same criteria among jurors especially when there are some invited external examiner will help to gent converge comments and specially better marks. When they asked that whether they want external juries to invite on submission days they believed that (92 percentage) external examiners should be invited for jury day to make them chance to have other exerts perspectives and views. They were asked to name their expectations from fair and effective assessment and the result is tabulated in table 1.

Table 1: Traits of effective assessment model base on student’s expectations.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dialogue feedback and give chance to students to defend their project</td>
</tr>
<tr>
<td>2</td>
<td>Using same criteria in assessment between jurors</td>
</tr>
<tr>
<td>3</td>
<td>Jurors assess the design process and not only the end product</td>
</tr>
<tr>
<td>4</td>
<td>Self referenced assessment, based on students previous performance level</td>
</tr>
<tr>
<td>5</td>
<td>Let students know about the criteria of assessment before submission day</td>
</tr>
<tr>
<td>6</td>
<td>Students work are graded base on the quality of their work</td>
</tr>
<tr>
<td>7</td>
<td>Criteria are defined base on course objectives</td>
</tr>
<tr>
<td>8</td>
<td>Course objectives divided base on their priority and dedicated different portion of grades base on this.</td>
</tr>
</tbody>
</table>
Students prefer play for more active roles in the evaluation of their achievement. The construction of tasks, the development of criteria for the evaluation of performance, and the scoring of the performance may be shared or negotiated among teachers and students. The assessment takes all kinds of forms such as: observations, text- and curriculum-embedded questions and tests, interviews, performance assessments, writing samples, exhibitions, portfolio assessment, and project and product assessments.

Author believes that classifying jurors expectations and assimilating evaluation and assessment criteria among jurors and apply it to all students in a same studio can solve some problems like worries about fairness ad subjectivity of evaluating and reporting models in art and architecture studios. This claim is completely base on three main traits of authentic evaluation model which is reliability, practicality and validity [Knight, 2003]. In this way the comments will not be spontaneous rather aligned with learning objectives. This can avoid excessive emphasis on the technical abilities in final jury days.

**Conclusion:**

Deep approaches to learning are associated with students’ intentions to understand and construct the meaning of the learned content, whereas surface approaches to learning refer to students’ intentions to learn by memorizing and reproducing the factual contents of the study materials.

Students generally shift between surface and deep approaches to suit the assessment demands of their courses. Assessment of students’ achievement is an important factor in encouraging students to adopt these kinds of deep learning strategies especially in art and architecture studios that all the learning and teaching process is taking place in the form of evaluation and assessment. Till evaluation process remains subjective and spontaneous, the main effective factor will be the jurors’ perspectives and students as an important part of learning process remains unregarded. Students and their perceptions of evaluation and assessment process can be an appropriate base for changes and improvement of current implemented models.

Discussion among different architecture faculties and their students’ perception about evaluation and assessment models can prepare good stage to study about new effective factors and elements like gender, culture, background and talent. In this way we can understand whether we need to trace different evaluation and assessment model base on mentioned factors or we have to design one standard model for whole architecture faculties.

**REFERENCES**


