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Problematization of assessment in the architectural design education: First year as a case study

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Abstract

This paper discusses the ways in which studio instructors assess students' design and performance during the basic design studios. Architecture requires a discipline-based education in which design studios have primary place in the curriculum. In design studio education the primary focus of assessment has always been the studio production (i.e. end products of the students). There is a common tendency to neglect students' experience and process of learning during assessments. Furthermore, assessment criteria of the studio instructors may not be explicitly stated.

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1. Introduction

Design is the most important and characteristics field of the architectural profession. Because of this fact design courses are the most important and central part of the architectural education occupying almost one quarter of the total educational load. (Bunch, M. 1993) The well documented history of the architectural education records various methods of design training. (Cuff, 1998) In these studies few focus on the types, processes, and the role of assessment (Nicol, D. Pilling, S, 2000). Additionally, few research has examined the architectural design education from the perspective of educational sciences (Lindwall, O., Lymer, G., Ivarsson, J., 2008) In this paper, we problematize this neglected area and report and discuss the findings of the initial stage of an ongoing research.

2. Assessment in Education

Assessment is a general term used to define the measurement of students' progress. For both the instructors and the students, "grades," in whatever format they are, are the ultimate tools used in assessment and acknowledged as

having a decisive role in education. Well designed assessment sets clear expectations, establishes a reasonable workload, and provide opportunities for students to self-monitor, rehearse, practice and receive feedback. (James, McInnis, Devlin, 2002). The crucial point for the instructors is to see assessment as a part of the teaching-learning process rather than a comparison among the students. The other point that should be acknowledged is that as carefully designed assessment contributes directly to the way students approach their study, poorly designed assessment has the potential to hinder learning and distort the path of progress. As such, assessment contributes indirectly but powerfully to the quality of learning. (James, McInnis, and Devlin, 2002)

Assessment in education is needed to inform the students, about their strengths and weakness, what they need to do to improve their practical skills, technical understanding, the quality of their ideas, and their ability to research and realize their intentions (Hickman, 2002). In other words assessment in the broadest sense, involves identification of goals and purposes, selection of procedures, methods, and measures, coordination of timing, analysis of data, interpretation of results, and formulation of responses to the results. Of primary importance in any assessment is selection of criteria on which to base the assessments. (Dorn, Madeja, and Sabol, 2004) Additionally, teachers/instructors need to know and judge the effectiveness of their teaching students' parents need to know the attainment and progress of their children and to understand how to support their learning, and finally other instructors also need to monitor students' progress across the curriculum. (Rayment, ed., 2007)

Comparing our review of the literature and our observations of different architectural design education environments in Turkey, we argue that there is a lack of concern for the role of assessment in the education. Although teaching and assessment experience are inseparable from each other in the design education, instructors rarely use assessment as a positive learning strategy. Students may feel perplexed after receiving their grades at the end of design evaluations and feel lost within the discrepancy of statements while their work is discussed by the instructors and the grades given by them.

3. Operation of the Architectural Design Studio

Architectural design studios are educational environments that professional education and art education is conducted jointly. Additionally, these studios are premised on a particular kind of pedagogy defined as “learning by doing”. Students are asked to start designing before they know what designing incorporates. These studios are typically organized around projects of design in manageable scales, individually or collectively undertaken by the students, and, depending on the year of education, simulating the actual practice as closely as it can be.

In terms of the dialogue between the instructors and the students, and the evaluation and assessment types, architectural design studios have developed their own ritualistic pedagogies, such as design reviews, desk (individual) crits, and design juries, all attached to a core process of learning by doing. And because studio instructors must try to make their approaches to design understandable to their students, the studio offers privileged access to designers' reflections on designing. It is at once a living and a traditional example of a reflective practicum (Schön, D., 1987). Design studio learning embraces numerous forms of representations, such as: visual, verbal, tactile, written, and is therefore rich in communication potential. It also sometimes involves students working in groups, and so it is arguably rich in team working potential (Nicol, D., Pilling S., 2000).

The literature suggests that there are common problems related with the design studios that are implemented all over the world. We content that the foundation of these problems is grounded in the experience of assessment. Wilkin summarizes the problems related with the design jury/review in three different categories: 1. Large student groups that school of architecture host prevents accessibility of the discussion material. In other words distance from the action is one of the main problems of reviewing processes. 2. Extended review hours create weariness from mental exertion. Large groups enlarge waiting time. As a result students feel that they have had insufficient tutorial time or tutor interest. 3. Finally cultural traditions of how the review is run impose their own constraints on learning (Wilkin, 2000).

These problems can also be considered in between the problems of assessment in architectural education due to the nature of design discipline. It is necessary to note that although one-to-one dialogue between the instructor and students has great importance in teaching and assessment, majority of the students believe that the best part of learning does take place during the reviews.

4. Classification of Assessment Types (Reviews) in the Architectural Design Studios

Architectural education includes both summative and formative assessment methods. Especially in reviewing, formative assessment methods are used as a teaching strategy and also evaluates the student work at the end of the semester similar to a performance-based assessment. However, in both cases the assessment is based on qualitative methods and accepted as being subjective. Interestingly, design studio seems to use both the criterion-referenced assessment, as the instructors need to see that students qualify certain standards in order to pass to upper level; and the norm-referenced assessment, as the particular grades of the students depend on the quality of the cohort. The assessments can be informal and formal and the grades can be given both by the internal and the external evaluator.

Project reviews that have been continuously applied since the beginning of the formal architectural education are still an important and peculiar component of the education that cannot be abandoned. Today different review types are used in design studios consecutively. The first category of reviewing is “individual criticism”. Individual crits come after the establishment of common criteria and is preferred in execution of long time projects. Individual crits that are most commonly used format of reviewing in architectural education is realized by personal contact between the student and instructor discussing the work of the student (usually drawings and models). Because of the physical constrains it only enable small groups of students to observe this one-to-one dialogue. As such they derive associations for their own work while they observe each other. It is necessary to not that individual criticisms are quite efficient for pursuing the individual developments of students in their design studies.

We refer to the second type of review as a “panel discussion”. The panel is executed by discussing the projects which are selected randomly or intentionally by the instructors without knowing which student it belongs to. These discussions, which are carried out interactively in a participatory atmosphere, are effective mediums of learning. This format provides feedback to the students indirectly, and avoids the critic to be taken personally. Besides, it is also possible to reinstate the assessment criteria and common knowledge domain. It is preferred at the initial stages of the design process in the upper levels of education, which then leaves its place to formal jury. However, the function of this type of review is specifically important in the beginning of design education since the objective of design studio for beginning students is not limited with experiencing the design, but also providing basic terminology and notions of design. It is necessary to note that panel criticism also provide instructors to follow the general development of the studio, success or weakness of the design problems that are formulated by faculty.

The last and may be the most ceremonial way of review is design jury. In the jury system, one student or a group of students present / defend their work in front of the jury and get feedback / criticism. This format can have variations: it can invite other students as discussants and audience as well as instructors from other studios or different schools or professionals as jury members. Jury format can be accepted as a ritual whose formal characteristics, periodicity, constituency, spatiality, choreography and language worked together to make the jury a special collective occasion usually] for celebrating the end of a design project (Webster, H., 2006). Juries are well-organized mediums to carry out both assessment and education of students jointly. Jury is the most performative stage of education where subject (student) and agency (the discipline of architecture – as represented by the critics) actually interact (Webster, H., 2006) .

One of the main characteristics of the design education is that its assessment is not based on formal examinations and architectural design education is similar to the other design educations in the way it is conducted in studios: the evaluation of student attainment, knowledge and skill, is indirect, that is through practice and projects. Because of these reasons the Main form of assessment in architectural education is the review or criticisms. The review system, as a context for critical analysis of the studio design project, also provides a broad learning opportunity for both students and faculty. Within the context of Sabol and Zimmerman’s grouping of the assessment types, (Sabol and Zimmerman, 1997) architectural design education can be said to fit into the “authentic” assessment type rather than the “standardized” and “alternative” measures. As characterized by Armstrong (1994), “authentic assessment does not focus on the factual knowledge as an end itself. Rather, it focuses on the ability to use relevant knowledge, skills, and processes for solving open-ended problems during meaningful tasks. Another key factor that distinguishes authentic assessment from traditional ones is that they provide opportunities for students to integrate many kinds of learning.” (Dorn, Madeja, and Sabol, 2004)

Architecture as a discipline consists of both artistic scientific abilities and knowledge. Therefore, the courses in education are designed to fulfill the five competency areas: design, technology, practice, history and electives. Design courses have central importance in between these five groups of courses. Since the domain of design is acknowledged as requiring creative thinking more than other cognitive abilities, the criteria used in its assessment have been ambiguous. This condition of architectural design courses (studios) is parallel with the recent discussion

on overcoming arbitrariness, inconsistency, and subjectivity of assessment in art and design education. While in the field of architecture the focus is on the communication types and the power relations between the students and the instructors (evaluators), in the field of art and design the focus is more on the use and aim of criteria-based assessment.

5. Assessment in Art and Design Education, A Literature Review

While agreed assessment criteria or objectives can be helpful to overcome arbitrariness, inconsistency, or subjectivity during the assessment process, they can determine the content of the course or condition the students' learning process. According to Mason and Steers, teachers teaching to specific assessment criteria in the knowledge that so long as students provide clear evidence of some engagement with the ideas and practices embedded in the criteria they are rewarded almost regardless of the actual quality of the work. In other words, when there is over-reliance on criteria they act as a regulatory device through which both teaching and learning practices are normalized. As a consequence anything unusual or challenging that does not conform to the particular conceptual framework of the assessment criteria is less likely to be properly rewarded. (Rayment, ed. 2007) Thus this creates a tendency toward a strict/orthodox pedagogic environment and inhibits creative responses. However, both art and design as activities have room for and should allow idiosyncrasy, divergence and uniqueness and their education should not become prescriptive (Bennett, 1989).

The other problems related with criteria-based assessment is that they can be stated ambiguously or leave space for hidden criteria to operate during assessments. Additionally, according to Ross, instructors or evaluators usually have the notion that if an activity is measured than it is noteworthy. (Rayment, ed., 2007) which means that the immeasurable activities will be disregarded or in order to be able to quantify the idiosyncratic work, some superficial assessment values may be introduced.

On the other hand, Lindström suggests that criterion-referenced assessment applied by teachers and students, can draw attention to the processual dimensions of creative work and articulate the tacit knowledge. (Lindström, 2006) In this context, we can derive that criteria-referenced assessment helps students to develop the notion that process is as important as the product. Process, in this regard, is synonymous with the ability of a student to self-evaluate oneself and to be to develop skills to tackle complicated problems in an independent and confident way. Assessment should be seen as an instrument for focusing both the instructors' and the students' attention onto qualities that foster learning.

In order for a criterion-referenced assessment to be successful, it should firstly be applied as a rubric (matrix) that fine-tunes the degrees of differences and secondly have room for students' thoughts to be represented during or before the assessment. (Lindström, 2006). Lindström's research on the validity and reliability of criterion-referenced assessment showed that given the same rubric of criteria, when the assessment of an instructor/teacher of an art course and an outside co-assessor of a similar art course are compared, the difference between them was by two steps or less.

There are also traditional dualities between assessing the "product or process" and judgments that are "subjective or objective". In order to transgress these dualities, Tim Dunbar offers an assessment structure composed of 1. The internal factors, 2. The external factors, and 3. The site/space/time of assessment. (Dunbar, 2003) . The internal factors include the teaching environment and the process of student work; the external factors include the learning outcomes, which can be divided into two as the behavioral and the material, and the assessment criteria, which Dunbar can be divided into three as 1. Subject specific, 2. Cognitive, and 3. Behavioral.

"Assessment should explicate what it is students are expected to learn and measure student attainment of the learning outcomes. Therefore assessment is the way teachers and students can establish whether each of the learning outcomes has been met." (Ehmann, 2005) According to Ehmann, there is a direct relationship between assessing the process, as much as the product, with student participation in the studio. in reviews (Ehmann, 2005) It can be claimed that student-centered learning and a productive assessment process, that is fostering deep learning, motivation, and confidence in the students, are correlated. Significantly, in the field of architecture Helen Webster argues that a pedagogically-damaging assessment process is a manifestation of the lack of student-centered learning. (Webster, 2007)

Extending the idea of openly discussing the bases from which design work is developed and subsequently judged, it is possible also to have students participate very deeply in constructing a space of shared understanding through techniques of self- and peer assessment that partner and even inform the assessment made by tutors and coordinators. A recent study into the applications and implications of these techniques in an undergraduate

psychology subject reveals the useful dimension of students gaining a better grasp of productive self critique and a greater understanding of criteria while engaging with assessment tasks (Hanrahan and Isaacs, 2001).

Others have also made similar observations. Cowan (2000) proposes that there is value in asking design students to spell out in detail the criteria and standards by which their work is judged, get assessors to do the same and then compare the results. ‘Students who do not know what they are trying to achieve are unlikely to make good progress, other than by chance. It is highly useful and informative to discover that, or whether, some students have no conception of what they are striving to achieve’ (p.281). Rust, Price and O’Donovan (2003) argue a similar, although more developed line, that the explicit statement of criteria and standards must be carefully woven into the socializing processes of tacit learning, even to the extent of inviting students to join in with staff in the judgment of work: ‘It follows that inviting students into this shared experience should also enable more effective knowledge transfer of assessment processes and standards to them’ (Thomson, S., 2007) These views, coming both from fields of art and architecture education and from field instructors and education scientists, set the basis for investigating how the instructors of architectural design studio conceptualize assessment.

6. Research Method and Findings

Based on the literature reviewed and our framework stated in the introduction, we formulated a survey consisting 30 questions as an initial part of our ongoing research. Except the first four and the last open-ended question asking their thoughts on the issue, all the questions in the survey have a Likert-type attitude measurement items having three levels: 1. yes, I agree; 2. In some occasions I agree; 3. No, I do not agree. The survey is conducted in four architectural schools randomly selected in Turkey and received 37 respondents.

The questions in the survey can be categorized as follows:

1. Information related with the respondents’ experience as an instructor of the first year design studio and as an instructor in the department of architecture:

Q 1: For how long have you been an instructor in the first year design studio?

Q 2: For how long have been a part of the faculty?

2. Types of representations used during assessment:

Q 3: Mark the most three commonly used representation types that you require students to use while assessing their work:

Diagrams / Sketches; Photographs; 2D Graphical Work; Study Model; Final Model; Text;
Poster; Technical Drawing; Video/Animation

3. Types and processes of assessment methods:

Q 4: Mark the most three commonly used assessment type that is used in your studio:

One-to-One (An instructor and a student)
Collective (An instructor and a group of students)
Jury 1(A group of evaluators and a group of students)
Jury 2 (A group of evaluators and a student)
Jury 3 A group of evaluators and student works)
Sketch Problem
End of Semester Portfolio

Q 5: In assessments where more than one evaluator participates, a debate on the student work among the evaluators is more fruitful than calculating the mathematical average of the grades.

Q 6: In assessments where more than one evaluator participates, calculating the mathematical average of the grades is a more just method than a debate.

4. Whether they believe and use criteria-based assessments; and if so, whether criteria are suggested by the department, coordinator, or the instructor individually:

- Q 7: While grading, I develop assessment criteria appropriate for the content of the semester
 Q 8: I grade the student work only by comparing them
 Q 9: The assessment criteria are usually given by a coordinator or an administrator
 Q 10: There should be common criteria among the instructors teaching the same level of students.
 Q 11: Each instructor should have her/his assessment criteria.
 Q 12: The oral presentation of the students affect my assessment
 Q 13: Oral presentation is redundant, instructors should assess student work only by the material
 Q14: Not only the product but student progress is among my assessment criteria
 Q 15: Progress is a student's bare minimum obligation, therefore if we assess only the product, we can grade more justly
 Q 16: Each student has a different learning style, therefore we cannot assess their work with the same criteria.
 Q 17: Since the bare minimum knowledge and ability that the students need to acquire is common, we have to use common assessment criteria.

5. The role of assessment in learning/teaching strategy (Feedback):

- Q 18: I arrange a feedback meeting with the students after the grades are given.
 Q 19: I believe that every instructor should a feedback meeting with the students after the grades are given.
 Q20: Grades give feedback and inform the instructor more on the teaching and communication level in the studio. As such, poor grades indicate that some changes should be made in teaching.
 Q 21: Grades give feedback and inform the instructor more on the learning and work level of the students in the studio. As such, good grades indicate that the content or assessment style should become more challenging.

6. Time spent during assessment and whether instructors are flexible in changing the grades if there happens to be objections from the students:

- Q 22: I double-check and compare the works of the students that have the same grades as the last phase of assessment.
 Q 23: There is no time to double-check and compare the works of the students that have the same grades.
 Q 24: I tend to change the grades if students object grades.
 Q 25: I do not consider changing grades.

7. Whether they believe that having assessment training for the instructors would be useful:

- Q 26: Studio instructors should have training on assessment as a support for their teaching.
 Q27: There is no need of assessment training as a support for teaching the design studio.

8. How influential and critical (importance of assessment) they think assessments (grades) are in design education:

- Q 28: Grading in assessment is the most harmful element of education; it should be abandoned and alternative methods should be used.
 Q 29: Grading in assessment is the most influential feedback of education.

Findings

Types of representation :_Evaluations show that both two dimensional presentation (technical drawing, sketching, poster presentations) and three dimensional presentation (model) techniques are used in assessing the studio out comes. In between them two dimensional drawings such as sketches, conceptual diagrams and posters whether digitally produced or not are the most common techniques in assessed material or studio product.

Types and processes of assessment methods: According to the results of the inquiry, most common format of reviewing in first year education is panel criticism without any incertitude. In contrast to the upper years of

architectural education, individual criticisms and juries are preferred frequently. Only 12 per cent of the respondents apply jury method in reviewing, while 18 per cent choose individual criticisms between alternatives. Results show that 70 percent of the studio instructors prefer panel criticism in reviewing.

Whether they believe and use criteria-based assessments; and if so, whether criteria are suggested by the department, coordinator, or the instructor individually: Depending on the results of the survey opposite to the common belief or discourse on subjectivity of design activities majority of studio instructors believe that criteria-based assessment is required in design education. According to majority again, criteria of each class must be arranged depending on the prescribed objectives of each semester. More than 85 per cent of the respondents admit impotence of criteria-based evaluation while indicating necessarily of developing these criteria by group decision of instructors.

The role of assessment in learning/teaching strategy (feedback): The results also proofs that studio instructors considers assessment as a strategic tool in teaching activities. Almost everyone agrees that grading provides feedback for studio implementation if the general success level is low. However according to them grades becomes an indicator of improperly conducted studio organization if general success level of the student level too high.

Time spent during assessment and whether they are flexible in changing the grades if there happens to be objections from the students: According to the results, instructors spent extra time for evaluation to provide and check equivalence in between students by comparing student works by grouping. However results also show that they don't have a tendency to change the grades if any rejection from students appears.

Whether they believe that having assessment training for the instructors would be useful:

Almost two-thirds of the respondents think that technical training of assessment for instructors is unnecessary. This probably indicates that they don't consider their knowledge adequate in this field.

How influential and critical (importance of assessment) they think assessments (grades) are in design education:

According to the results, respondents believe that grading has the greatest influence in education; but whether this influence is positive or negative is questionable. For instance, 10 out 37 mark that grading can sometimes be damaging to the students learning, and 28 do not believe that it is the most influential feedback in education.

7. Conclusions and Remarks for Future Research

Survey only points out the formal, official views or the intentions. But we also need to examine whether there is any discrepancy between intentions and actions. Thus, additional fieldwork employing ethnographic research methods would be necessary. The research will be complemented by the exploration of the student views and experiences on assessment process and values. This data will be collected by surveying and interviewing different group of students.

8. References

- Armstrong, C. L. (1994). *Designing Assessment in Art*. Reston, VA: National Art Education Association.
- Bennett, G. (1998). Words in My Eyes: The Assessment of Art and Design Education. *Educational Studies* 15: 241-49.
- Boucharenc, C. G. (2006). Research on Basic Design Education: An International Survey. *International Journal of Technology and Design Education* 16:1-30.
- Bunch, M. (1993). *Core Curriculum in Architectural Education*, San Francisco: Melen Research University Press.
- Cowan, J. (2000) Evaluation and Feedback in Architectural Education. in *Changing Architectural Education*, Nicol, D., Pilling S. (ed.) London: Taylor and Francis Publications.
- Cuff, D. (1998). *Architecture: The Story of Practice*, Cambridge: MIT Press.
- Dorn, C., Madeja, S., Sabol, F. (2004). *Assessing Expressive Learning*. London: Lawrence Pub.

- Ehmann, D. (2005). Using Assessment to Engage Graphic Design Students in Their Learning Experience. Making a Difference: Evaluations and Assessment Conference 30 Nov – 1 Dec, Sdney.
- Hickman, R. (2007). Wipped-fancying and other vices: Re-evaluating assessment in art and design. In *The Problem Of Assessment in Art And Design*. Raymend, T. (Ed). Bristol: Intellect Books.
- James, R. McInnis, C., Devlin, M. (2002). *Assessing Learning in Australian Universities*.
www.cshe.unimelb.edu.au/assessinglearning accessed on 19 October 2008.
- Lindström, L. (2006). Creativity: What is it? Can you Assess it? Can it be Taught? *Journal of Art and Design Education*. 25: 53-66.
- Lindwall, O., Lymer, G., Ivarsson, J. (2008). “The Crit as a hybrid activity: negotiating Assessment in Architectural Education.” Paper presented at the Language and Mind Conference, July 14-16 Odense, Denmark.
- Nicol, D., Pilling S. (ed.) (2000) *Changing Architectural Education*, London: Taylor and Francis Publications
- Rayment, T. (ed.) (2007). *The Problem Of Assessment in Art And Design*. Raymend, T. (Ed). Bristol: Intellect Books.
- Sabol, F. R., Zimmerman, E. (1997). An Introduction: Standardized Testing and Authentic Assessment Research in Art Education. in LaPierre and E. Zimmerman (eds.) *Research Methods and Methodologies for Art Education*. reston, VA: National Art education Association.
- Schön, D. (1987) *Reflective Practitioner*, San Fransisco: Jossey-Bass Publishers
- Thomson S. (2007). Sharing Understanding of Assessment Criteria in Design Project Tutorials: Some Observations of, and Implications for, Practice, *IDEA Journal*, vol.38, no.5
- Webster H. (2006) Power, Freedom and Resistance: Excavating the Design Jury *Journal of Art and Design Education*, vol.25, no.3
- Wilkin, M. (2000) Reviewing the Review, *Changing Architectural Education*, Nicol, Pilling, eds. *Changing Architectural Education*, London: Taylor and Francis Publications