Beginning Design Students' Perception of Design Evaluation Techniques

Introduction

Evaluating design students requires inherently different methods than existing models available in other disciplines; as such incoming students are required to adjust. The primary difference between design education and education in other disciplines is that design is not often achieved with a single correct solution (Roberts, 2006). The purpose of design studios is to aid students in exploring creative solutions, as opposed to finding the single correct answer. This type of process-based teaching often creates confusion for beginning design students who may not be exposed to this method at the secondary education level. Research suggests that a beginning design student's confusion associated with process-based critiques causes learning difficulties (Roberts, 2006). Beginning design students enter studios, are told by their instructors that in design studios there is not a single correct solution, there may be several solutions to fulfill design requirements—what matters is the process. After all, designing is more than an activity—if it were not instruction would be enough (Uluoglu, 2000). But instruction is not enough. As *any* student knows, in nearly every level of education, instruction and evaluation go hand-in-hand. Even the most elementary educational models require evaluation techniques as an indication of learning. So in design studios, critiques must be tailored to indicate the student's process-based learning. Not only are beginning design students asked to think creatively and intuitively throughout the design process, they are also evaluated with methods that are, in many cases, foreign. To further complicate the matter, for beginning design instructors, the evaluation techniques that most accurately reflect students' learning, like the design process, is not subject to a single correct method. While several recent studies have indicated the pros and cons of traditional design juries generally, few have analyzed design students' perception of the effectiveness of alternative or supplementary critique approaches available to design instructors. The purpose of this paper is to evaluate commonly used design critique methods based on student's perception, with particular attention paid to students' perception of the design jury as means of evaluation.

Background

Design juries are the most commonly employed evaluation method used by design educators, despite the fact that its efficacy as a mechanism for student feedback has been largely ignored. Studies that have been published on the topic of traditional design juries reveal that students find design juries ineffective in promoting student learning, discouraging, confusing and frequently boring (Anthony, 2002; Webster, 2007). Several other negative effects of traditional design juries as a feedback mechanism are cited including its responsibility in driving away racial minorities and women, and its lack of ability to improve design work in design studios (Anthony, 2002). Nonetheless, traditional design juries remain the prevailing feedback mechanism for students as well as the primary gauge for design instructors in design students' knowledge. Recent literature on design-based teaching methods sheds some light on design instructors' favorable treatment of traditional design juries as a critique technique.

Overwhelmingly, recent design instruction literature has focused on two general questions: how to effectively teach the design process (Dermibas and Demirka, 2007; Uluoglu, 2000), or how students' effectively learn the design process (Kvan and Yunyan, 2005; Ochsner,

2000). The first question—how to effectively teach the design process—is a topic concerned with the instructors' methods; it is analyzed from the instructors' perspective. One commonly held belief is that as former design students, design instructors have some understanding of design studios, and are therefore capable of teaching due to their experience as a design student (Oscner, 2000). For decades, the traditional design jury has been the primary feedback method to students in design studios. Based on this fact, it is understandable that design educators are inclined to evaluate their design students with the same methods that they were evaluated as students. The second question—how students' effectively learn the design process—is closely related to the design instructors' teaching methods, because some teaching methods have proven more effective than others in the beginning design student learning process (Webster, 2007). Both questions are asked and answered by design instructors and are therefore inherently biased. Certainly, as former design students, design instructors are familiar with the functional components of design studios. Design instructors understand that design solutions are not concerned with one correct solution, conveying the process of synthesis is a central skill in the design students' learning process (Attoe, 1991). As a result, teaching of design is realized in several different ways: there is no one way to teach design, and it is the personal attributes of design knowledge which is the foundation for design instructors teaching methods (Uluoglu, 2000). The introduction of personal attributes in the instructors' teaching methods translates to a bias in the effectiveness of a critical evaluation technique. In other words, if a design instructor believes his or her personal design knowledge is due to his or her studio experience, and the prevailing feedback approach for that design instructor as a student was the traditional design jury, he or she is inclined to implement this method in his or her class.

While some studies have investigated aspects of the traditional design jury, few have focused on students' perception of alternative or supplemental forms of feedback that are both helpful learning tools and encouraging feedback methods. To evaluate a design student's knowledge and to provide the best possible feedback to the design student a number of different critique techniques are available for design instructors. Critics of traditional design juries argue that juries are verbal-based assessments conducted by a critically-minded panel with the intent of coercing students to conform to "hegemonic notions of professional identity" (Webster, 2007). Traditional design juries, argue critics, do not foster support of student-centered construction "of their own architectural identities" (Webster, 2007). The goal espoused by instructors—to foster students' construction of their own architectural identity—is ultimately the responsibility of instructor critiques and critical evaluation. If, as critics suggest, traditional design juries are not accomplishing this goal, then what method(s) is best suited to accomplish this purpose? This paper will critically evaluate student's preference of eight critique methods (including techniques suggested by students in Webster's 2007 article in the *Journal of Architectural Education*) with particular emphasis on the traditional design jury. One-on-one desk critiques, Studio Pin-up (instructor and peer), Peer Evaluation (written), Self Evaluation (written), traditional design jury (verbal), written evaluation (instructor), and one-on-one evaluation (instructor and student) are the critique approaches presented in this paper.

Before explaining the research method a brief description of each technique is described.

- *One-on-one desk critique(s)* are verbal critiques between the design instructor and the design student in the studio during the design process. Of the eight feedback techniques presented the one-on-one desk critique is the only evaluation method that occurs simultaneously during the *entire* design process.

- *Studio Pin-up(s)* (instructor and peers) are informal critiques occurring during the design process that typically involve the entire design class or large groups within the class, design instructors, and invited guests.
- *Peer evaluation(s)* (written) are written critiques of a completed design project by design student peers. This evaluation may be conducted by one or more design student peers.
- *Self evaluation(s)* (written) are written critiques of student's own completed project.
- *Traditional Design Juries* (verbal) are oral and graphic presentations of a completed project to a panel of qualified professionals including design instructors, additional faculty, practitioners, or other invited guests, as well as the design students classmates.
- *Written evaluation(s)* (instructor) are in-depth written critiques of a completed project by the design instructor(s).
- *One-on-one evaluation(s)* (instructor and student) are written and/or verbal critiques between a design instructor and a design student occurring upon completion of a project.

Method

Calculating student perceptions of alternative critique approaches is difficult for a number of reasons. Upper-level design students generally have a greater understanding of the inner workings of a studio than beginning design students. As critiques are a fundamental component of life in the studio, beginning and upper-level students have varying preferences based on the amount of time in the studio. Upper-level design students are more prepared than beginning design students to stand in front of a traditional jury, because upper-level students have done so before. Also, personality effects preference of critique method—regardless of education or age level. Upper-level design students who are particularly demure, may oppose the more public critique methods and beginning design students with great confidence may unabashedly accept critiques publicly. For this reason, this research tested a sample population of landscape architecture students at Mississippi State University, from first-year design students to graduate design students.

The research method for this study was survey-based, in the form of an online questionnaire. This questionnaire was administered using QuestionPro , a web-based survey provider. QuestionPro Student Research Sponsorship Program allows student researchers free access to QuestionPro tools and services, and must be licensed. The possible survey responses were multiple choice (likert-scaled), ranking (put in order), and typed response. The first five questions were either demographic (age, sex, and race) or educational experience (degree track and educational classification). The remaining questions measured students' preference of critique methods based on several criteria. In the first group of questions, respondents were asked to rate each of the eight critique methods individually based on a Likert-scale from *Most effective* to *Least effective* with *Have no experience* as a choice. The scale was divided into ten distinct, separate choices (including the aforementioned), so the respondents could identify within the range of most effective to least effective, with *neutral* being the median choice. In the second group of questions, respondents were asked to rank the eight evaluation techniques from 1 (most helpful) to 8 (least helpful) based on their "helpfulness to you as a student". Survey

tools allowed respondents to enter a number 1-8 manually, identifying critique methods from the *most* to *least* helpful. Rank values not falling between 1 and 8 were not accepted. In the third block of questions, respondents were asked to type responses to the following two questions: *Please explain why you feel that you top choice is the most helpful (What makes it more helpful than the other techniques)* and *Please explain why you feel that your last choice is the least helpful*. The purpose of the typed responses was to understand students' preferences of the most helpful and least helpful design critiques, the exact reasons they did or did not prefer a particular critique method, and to asses the problems inherent to specific critique methods. In the fourth and final block of questions, respondents were asked the same set of six questions pertaining to each critique method and were asked to answer one of six choices: *Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree and N/A*. An example question would be, for one-on-one desk critiques—*I am motivated by this evaluation technique*—answer, *Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, or N/A*. The other five Likert-scaled questions respondents answered: *I am encouraged by this evaluation technique, I learn a great deal from this evaluation technique, I understand the feedback that I receive from this technique, I feel the feedback that I receive is fair*, and *This evaluation technique has helped me to improve my skills as a design student*. These questions were intended to gather specific data on student preferences and reveal which critique techniques are preferred and for what reasons. It also identifies if encouraging, or understandable feedback is correlated to improved design skills, or fairness.

Participants

The QuestionPro survey was linked to a Mississippi State Department of Landscape Architecture student listserve with recipients being landscape architecture undergraduate students, landscape contracting undergraduate students, and landscape architecture graduate students. The total possible student population (participation at 100%) from the three degree tracks: 127 students. The sample population, a participation rate of 40.2%, was 51 students. Of the 51 respondents, the majority were males in upper level courses.   Figure One illustrates the gender of the respondents. Figure Two indicates the number of respondents by educational classification. The racial makeup of respondents was almost exclusively Caucasian with a ratio of 50 to 1, the one non-Caucasian student was African American.
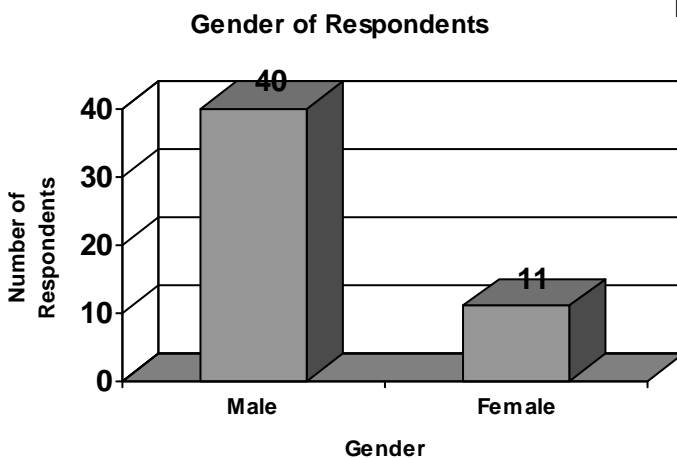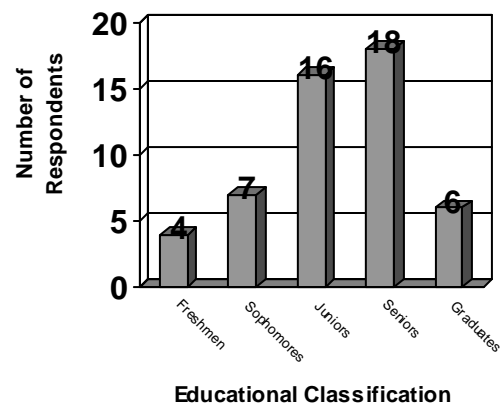
Figure One   Figure Two

Gender of Respondents

Educational Classification of Respondents

Results

The first group of block questions asked students to rate his or her preference for the eight critique techniques (One-on-one desk critiques, Studio Pin-up (instructor and peer), Peer Evaluation (written), Self Evaluation (written), traditional design jury (verbal), written evaluation (instructor), and one-on-one evaluation (instructor and student) based on their effectiveness. Student ranked the eight critique methods from 1 (Most effective) to 8 (Least effective). Figure Three indicates student ranking of evaluation techniques in order of student preferences. The lower mean scores indicate higher preferences ratings based on effectiveness, and the higher mean scores indicate lower preferences ratings based on effectiveness.

Figure Three

Evaluation Techniques in Order of Student Preference based on Effectiveness	Average Score (rounded to the nearest tenth)
1. One-on-One Evaluation (Professor and Student)	1.7
2. One-on-One Desk Critique	2.1
3. Written Evaluation (Professor)	2.5
4. Traditional Design Jury	3.2
5. Studio Pin-up (Professor and Peers)	3.3
6. Peer Evaluation (Verbal)	4.8
7. Peer Evaluation (Written)	6.0
8. Self Evaluation (Written)	6.4

The second group of block questions measure the eight evaluation techniques based on their "helpfulness" to students.   Figure Four and Figure Five indicate students' preferences for the critique methods based on a one to eight scale—one being the most helpful and eight being the least helpful. Because students manually entered a number between one and eight for these rankings, frequency of response is indicated in the graphs.
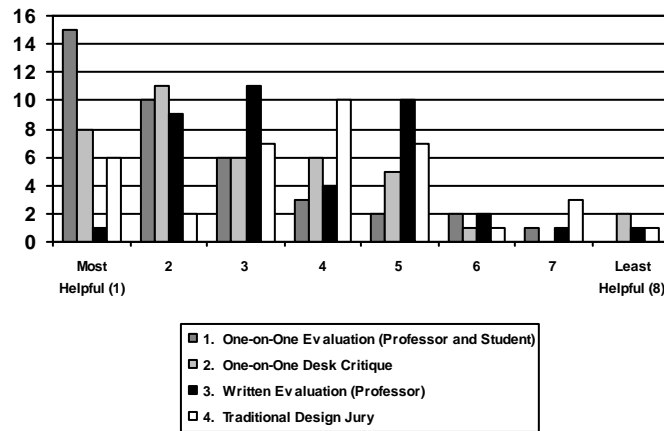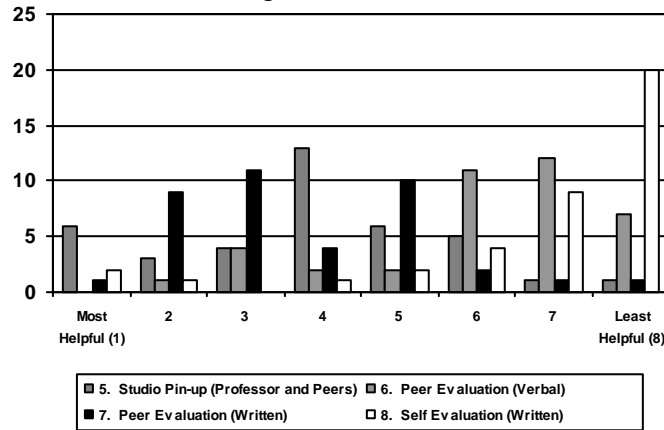
Figure Four

Figure Five

Figure Four reveals that of the eight evaluation methods studied, One-on-One Evaluation (Professor and Student) received the highest frequency rating based on helpfulness, with nearly 30% of students giving this method a score of "Most Helpful." The "Least Helpful" evaluation method, as indicated by nearly 40% of students in Figure Five, was the Self-Evaluation (Written). On average the other responses were clustered, with the One-on-One Evaluation and Self-Evaluation being the significant outliers. Based on a comparison with Table Four, "*Evaluation Techniques in Order of Student Preference Based on Effectiveness*," Table Six clearly indicates that the evaluation techniques based on the criterion of "helpfulness" differs quite dramatically from the criterion of "effectiveness". Most notably, traditional design juries are considered more "helpful" to students' than "effective". Also, student responses indicated that Peer Evaluation (Written) is more "helpful" than it is "effective". Generally, respondents' preferences of a particular evaluation technique based on "helpfulness" varied at a far greater rate than "effectiveness". Students' preferences based on effectiveness and helpfulness is further analyzed in the discussion section of the paper. .

Figure Six

Evaluation Techniques in Order of Student Preference based on Helpfulness	Average Score (rounded to the nearest hundredth)
1. One-on-One Evaluation (Professor and Student)	2.41
2. One-on-One Desk Critique	2.85
3. Traditional Design Jury	3.62
4. Peer Evaluation (Written)	3.72
5. Written Evaluation (Professor)	3.87
6. Studio Pin-up (Professor and Peers)	3.87
7. Peer Evaluation (Verbal)	6.10
8. Self Evaluation (Written)	6.79

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The third group of block questions asked students to type explanatory responses to these rankings. Written responses proved valuable in examining students' rationale for preferring one technique over another. However, typed responses had a lower participation rate than other questions in the survey. Written responses are examined in more detail in the discussion section of this paper.

Discussion

One limitation of the survey is quite obvious—survey respondents were not demographically diverse. This limitation does not make this study any less successful though, in fact, it reveals preferences specific to a particular demographic. Nearly 72% of respondents were male design students with a high percentage being junior level classification or higher. The survey was designed to be equally accessible to all design students; however participation rates were far greater for third, fourth, and graduate level design students. The data was not processed to indicate individual responses based on education classification, so, based on participation rates, overall response trends are more indicative of older design students' preferences than younger design students' preferences, particularly older male design students.

One-on-one evaluations were consistently the highest rated evaluation methods amongst the respondents in nearly every category. One-on-one Evaluation (Professor and student) was the most preferred evaluation method by the students. This evaluation technique received favorable rankings based on both "effectiveness" and "helpfulness," as well as the other factors including motivation, encouragement, and understanding. Written responses revealed that students felt less pressure, felt less likely to be embarrassed, and felt more attended to than other evaluation methods. One-on-one desk critique (Professor and student) was the second highest rated evaluation method based on student perception. This method, occurring during the design process, allows students and instructors to discussion issues and resolutions as they arise—before completing the project. Respondents favored this method of on-going or developmental evaluation to post-project completion evaluation.

Student perception of the remaining six techniques proved more difficult to analyze. Because the primary criteria for student ranking was "helpfulness" and "effectiveness" it would appear that results would be similar, after all, there is a fine line between the definition of helpfulness and the definition of effectiveness. Student ranking, however, revealed a distinction between the two. The major distinction, based on survey results, was that students who were encouraged by an evaluation technique preferred that technique regardless of the effectiveness. Written responses indicated that, time after time, what mattered to the students during the evaluation process was how they felt. Understanding this component of the evaluation process is essential for instructors.

Overall, student preferential rankings followed this order: one-on-one evaluation (Professor and student), one-on-one desk critique (professor and student), written evaluation (professor), traditional design jury, studio-pin up (professor and peers), peer evaluation (verbal), peer evaluation (written), and self-evaluation (written).

Conclusion

It should not be surprising that of the eight evaluation techniques, the two methods classified as "one-on-one" are preferred by students. Not only are the one-on-one methods more personal to the student, with the intense attention of the design instructor, this method also proved less embarrassing for the students. What is surprising, however (based on the overwhelming success of the one-on-one methods) is that students still view traditional design juries as an effective evaluation tool. While students prefer the psychological ease of the one-on-one discussions, there is a sense of satisfaction following a traditional design jury that is not inherent to other evaluation techniques. Also, while peer and self-evaluations are not treated preferentially by students, these methods should not be neglected. In fact, they should be used by instructors to *teach* students how to build critical skills. Teaching students how to critically evaluate their work and their peers work will inevitably create better designers. Most of all, this study reinforced the fact that every critique method has some merit. The purpose of the study is not to suggest that one method is more valuable than another, nor should it suggest that design instructors always tailor there critique method based on student preference. Understanding why students prefer certain methods over another makes it easier for instructors to utilize a particular method based on his or her situation. Certainly, during the course of a semester it is possible to use all of the techniques. Because student perception always varies, design instructors using a variety of evaluation techniques are the most successful educators appealing to the largest population of students.

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