

Student Perspectives on Design, Learning, and Interior Design Education

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Abstract

PURPOSE

The purpose of this study is to investigate how students conceptualize their learning and design experiences in an undergraduate interior design accredited program. In particular, how do they rate their own abilities in general skills and student preparedness, what interior design skills and knowledge areas are important to them, as well as what design activities are most significant and least significant in the design process? Many scholars argue that prior knowledge is an essential variable in design learning. However, if students' perceptions of design are incorrect, inconsistent, or incompatible with experts, radical conceptual change is required in order to modify these misconceptions.

CONTEXT

Two initiatives spurred development of this research of interior design students' perspectives—the interior design body of knowledge document and discussion (Martin & Guerin, 2005), and a recent university-wide student profile from the Office of the Provost on students' opinions of their undergraduate experiences (CIRP; NSSE). Both draw attention to the fact that there is a need for research and discussion about interior design students' perspectives.

Central to this study are metacognition in education, and novice conceptions of design. Dewey (1933) argues that the development of reflective thought is the most important goal of education. Metacognition is the monitoring and control of thought (Flavell, 1976). Also, Newsteller and McCracken (2001) believe that design students have well-developed prior conceptions and theories about the nature of design that conflict with understandings held by expert designers. Chi, Glaser, and Farr (1998) caution prior knowledge, however, is often incorrect.

SUMMARY OF RESULTS

The results of the survey highlight three central themes for discussion. First, both the larger university population and the interior design students rated themselves quite poorly on public speaking ability. This was consistent across grade levels. With numerous requirements for oral presentations in the interior design curriculum, why are students' ratings so low? Second, learning theories and theories related to interior design were consistently rated as least important in comparison to the other interior design skills and knowledge areas. However, as the metacognition literature suggests, it is critical for students to understand the importance of monitoring and regulating one's own thinking and learning. In addition,

interior design education has consistently stressed the importance of evidenced-based research and the value of research in the design studio (Guerin & Thompson, 2004). Are there discrepancies between students' and educators' perceptions of important aspects of design studio education? If prior knowledge is incompatible with expert understanding, the most drastic form of conceptual change is required because this knowledge is highly resistant to change. Third, the student group as a whole, as well as groups by grade level consistently revealed novice design conceptions in their beliefs of most important and least important design activities. Further study is needed to explore students' meanings of several of the listed design activities. How does one understand a problem without first decomposing, abstracting, and synthesizing? Or, is the language the real issue between design disciplines, and/or between design educators?

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PURPOSE

The purpose of this study is to investigate how students conceptualize their learning and design experiences in an undergraduate interior design accredited program. In particular, how do they rate their own abilities in general skills and student preparedness, what interior design skills and knowledge areas are important to them, as well as what design activities are most significant and least significant in the design process? Many scholars argue that prior knowledge is an essential variable in design learning. However, if students' perceptions of design are incorrect, inconsistent, or incompatible with experts, radical conceptual change is required in order to modify these misconceptions.

CONTEXT

Two initiatives spurred development of this research of interior design students' perspectives—the interior design body of knowledge document and discussion (Martin & Guerin, 2005), and a recent university-wide student profile from the Office of the Provost on students' opinions of their undergraduate experiences. The former addresses domain-specific knowledge and skills that educators and practitioners have found to be important to the discipline of interior design, while the latter addresses the more general learning experiences of students. Both draw attention to the fact that there is a need for research and discussion about interior design students' perspectives.

REVIEW OF LITERATURE

Central to this study are metacognition or reflection in learning, and novice conceptions of design. Dewey (1933) argues that the development of reflective thought is the most important goal of education. Reflective thought enables the individual to take control of and responsibility for their own thinking in order to participate effectively as a member of a democratic society. The term “metacognition” has been attributed to Flavell (1976) who states, “metacognition refers to one's knowledge concerning one's own cognitive

processes and products or anything related to them...Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes” (Flavell, 1976, p. 232).

In terms of novice conceptions of design and the implications of these on the design of learning environments, Newsteller and McCracken (2001) believe that design students have well-developed prior conceptions and theories about the nature of design that conflict with understandings held by expert designers. Prior knowledge is an essential variable in design learning. Chi, Glaser, and Farr (1998) caution prior knowledge, however, is often incorrect. They discuss three types of misconceptions: incorrect, inconsistent, or incompatible. Incorrect misconceptions are relatively easy to change because they are part of false ideas. Inconsistent prior beliefs resist change because they are part of a larger mental model that has structure. When prior knowledge is incompatible with expert understanding, the most radical form of conceptual change is required because such knowledge is highly resistant to change.

METHODOLOGY

One interior design program in a large Midwestern university was selected and all students within the undergraduate interior design program were invited to participate. This survey included questions covering the three main areas listed in the Statement of Purpose. The survey questions were developed from a review of existing sources including: 1) Cooperative Institutional Research Program (CIRP) and the NSSE (National Survey of Student Engagement) survey items and summary data, 2) a survey of beginning interior design textbooks, 3) the Interior Design Body of Knowledge document (Martin & Guerin, 2005), and 4) past studies on the misconceptions of novice designers. The survey was administered at the beginning of class during a regularly scheduled studio time or lecture course.

RESULTS

Ninety-one undergraduate students were currently enrolled and on campus when the survey questionnaire was administered. Of the 91 students, 56 agreed to participate with a response rate of 61.5%. ANOVA and descriptive statistics were used to analyze the data.

General Skills and Student Preparedness

The general skills portion of the survey asked students to evaluate themselves on their leadership, self-confidence, writing, and public speaking ability. These categories were identical to the data compiled by the university's Provost Office, which included the 2005 Cooperative Institutional Research Program (CIRP) and 2005 National Survey of Student Engagement (NSSE). With respect to leadership ability, 66.1% of the respondents rated themselves as at least above average compared to others in their age. This figure is consistent with CIRP results where 65.1% reported at least above average ability. The percentages of interior design students, who rated themselves as at least above average with respect to self-confidence, writing ability, and public speaking, were 66.1%, 58.9%, and 39.3%, respectively. In comparison, CIRP results indicated 64.3%, 46.5%, and 37.7%. Thus, interior design students' results indicated a similar pattern in ratings with slightly higher ratings in all four of the general skills and student preparedness questions.

Interior Design Skills and Knowledge Areas

Next, students were asked to indicate the importance of 31 interior design skills and knowledge areas (see Appendix A) on a scale from 0 = I do not know, 1 = not useful, 2 = somewhat useful, 3 = useful, and 4 = very useful. The top five items viewed as most important by the group as a whole were:

- 1) Space Planning
- 2) Presentation
- 3) Materials
- 4) Profession of Interior Design, and 4) Color (tie)
- 5) Principles and Elements, and 5) Lighting (tie)

Interestingly, the top *least* important skills and knowledge areas as viewed by the student participants included:

- 1) Interior Design Theories
- 2) Learning Strategies
- 3) Building Systems
- 4) Historic Design
- 5) Furniture Selection

Parsing the data down by grade levels, Interior Design Theories ranked in the top *least* important skills and knowledge areas for all three grades. Learning Theories was also a top

five least important skill or knowledge area in the sophomore and junior groups. Learning Theories ranked sixth on the least important list for seniors.

Design Activities

In this portion of the survey, students were asked to rank the top most important design activities from a list of sixteen activities (see Appendix B). They were then asked to rank the top least important design activities from this same list of sixteen. This list was identical to Newstetter and McCracken's (2001) survey where they studied novice conceptions of design at the Design Learning Laboratory at Georgia Tech University. As a whole, the interior design students' *most* important design activities were: 1) Understanding the problem, 2) Using creativity, 3) Making decisions, 4) Sketching, and 5) Visualization. The *least* important design activities were: 1) Decomposing, 2) Abstracting, 3) Synthesizing, 4) Making Trade-offs, and 5) Building. Breaking the groups down into grade levels showed very similar rankings of student beliefs as the whole group.

Interestingly, the interior design students' responses were very similar to Newstetter and McCracken's (2001) study results of 290 freshmen computer science majors at Georgia Tech University. Their top most important design activities included: 1) Understanding the problem, 2) Using creativity, 3) Visualizing, 4) Brainstorming, and 5) Making decisions. The top least important activities included: 1) Making trade-offs, 2) Decomposing, 3) Synthesizing, 4) Generating alternatives, and 5) Sketching. The authors acknowledge, while they are important in design, they are generally not considered the critical design activities. What is even more enlightening is the list of least important design activities. These activities are generally viewed by design experts as very important (Newstetter & McCracken, 2001).

CONCLUSION

The results of the survey highlight three central themes for discussion. First, both the larger university population and the interior design students rated themselves quite poorly on public speaking ability. This was consistent across grade levels. As future design practitioners, in addition to regular oral presentation requirements as students, why are design students' ratings so low? Second, learning theories and theories related to interior design were consistently rated as least important in comparison to the other interior design

skills and knowledge areas. However, as the metacognition literature suggests, it is critical for students to understand the importance of monitoring and regulating one's own thinking and learning. In addition, interior design education has consistently stressed the importance of evidenced-based research and the value of research in the design studio (Guerin & Thompson, 2004). Is there a disconnect between design students' and educators' perceptions of important aspects of design studio education? As was mentioned earlier, if prior knowledge is incompatible with expert understanding, the most drastic form of conceptual change is required because this knowledge is highly resistant to change. Third, the student group as a whole, as well as groups by grade level consistently revealed novice design conceptions in their beliefs of most important and least important design activities. Further study is needed to explore students' meanings of "using creativity", "understanding the problem", and "making decisions", for example. How does one understand a problem without first decomposing, abstracting, and synthesizing? Or, is the language the real issue between design disciplines, and/or between design educators?

In conclusion, this study is a first part of a larger, mixed-method design that will continue to explore interior design students' perspectives on learning, designing, and technology. Qualitative data from semi-structured interviews of students will explore these areas in more depth, as well as the role of computer technology and its role in amplifying design thinking in the studio.

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Appendix A: Interior Design Skills and Knowledge Areas

S.		Principles & Elements of Design	S.1	Human Factors	S.2	Computer Modeling
S.		Color —Color theory, color psychology	S.13.	Building Systems	S.2	Adobe PhotoShop
S.		Lighting	S.14.	Furniture Selection	S.2	Portfolio Design & Preparation
S.		Historic Design	S.15.	Furniture Arrangement	S.2	Presentation (pres. boards)
S.		The Design Process	S.16.	Detailing & Specifications	S.2	Knowledge of other design disciplines (i.e. graphic design, architecture, landscape arch, fine arts. etc.)
S.		Programmin g	S.17.	Designing for Special Populations		
S.		Concept Development	S.18.	Research	S.28.	Learning Strategies
S.		Theories related to interior design	S.19.	Drafting Techniques	S.29.	Project Management
S.		Space Planning	S.20.	Manual Rendering /	S.30.	Working in Teams
S.10		Materials	S.21	Physical Modeling (study models, final models)	S.31.	The Profession of Interior Design
S.11.		Sustainable Design	S.22	AutoCAD	S.32.	Other (please specify)

Appendix B: List of Design Activities

DESIGN ACTIVITIES

Of the sixteen design activities below, put a check mark next to the five **most important**.

- 1. Making Decisions
- 2. Understanding the Problem
- 3. Using Creativity
- 4. Abstracting
- 5. Goal Setting
- 6. Building
- 7. Evaluating
- 8. Decomposing
- 9. Synthesizing
- 10. Visualizing
- 11. Sketching
- 12. Imagining
- 13. Making Trade-offs
- 14. Brainstorming
- 15. Generating Alternatives
- 16. Modeling

DESIGN ACTIVITIES

Of the sixteen design activities below, put a check mark next to the five **least important**.

- 1. Making Decisions
- 2. Understanding the Problem
- 3. Using Creativity
- 4. Abstracting
- 5. Goal Setting
- 6. Building
- 7. Evaluating
- 8. Decomposing
- 9. Synthesizing
- 10. Visualizing
- 11. Sketching
- 12. Imagining
- 13. Making Trade-offs
- 14. Brainstorming
- 15. Generating Alternatives
- 16. Modeling