

# A Beginner's Mind

**PROCEEDINGS  
21st National Conference  
on the Beginning Design Student**

**Stephen Temple, editor**

**Conference held at the  
College of Architecture  
The University of Texas at San Antonio  
24-26 February 2005**

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Situating Beginnings  
Questioning Representation  
Alternative Educations  
Abstractions and Conceptions  
Developing Beginnings  
Pedagogical Constructions  
Primary Contexts  
Informing Beginnings  
Educational Pedagogies  
Analog / Digital Beginnings  
Curriculum and Continuity  
Interdisciplinary Curricula  
Beginnings  
Design / Build  
Cultural Pluralities  
Contentions  
Revisions  
Projections

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## **Constructing Passages: Accommodations for Diverse Learners in Architectural Education**

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Over the past two hundred years, architectural education coalesced from its earlier amorphous form, became formalized, and, over the course of the twentieth century, diverged into three relatively autonomous branches. The Beaux Arts with its focus on compositional strategies as both instructional and architectural content typify the earliest of these formalizations. While the Bauhaus and its various imitations across America disdained the historical content of the Beaux Arts, the modern movements adopted the primacy of formal compositional clarity wholesale. In the 1960s and 1970s as the work of phenomenologists such as Husserl and Merleau-Ponty found an audience outside academic philosophy, architectural pedagogy dedicated to bodily engagement began to appear. In reaction to the diminishment of symbolic content by both the post-Beaux Arts formalists as well as the phenomenologists, a conceptual or narrative architectural pedagogy emerged in the 1970s exemplified by Tschumi's or Hejduk's later works.

These three approaches – formalist, phenomenological, and narrative – are still with us in the twenty-first century; they are present in varying degrees in most schools of architecture leading to many, if not most, of the ideological arguments that pass as pedagogical debate in this country. We argue among ourselves over how best to train beginning design students; formalists call for a focus on techniques, phenomenologists for sensory experience, and narrative-oriented faculty for transmission of ideas. But how profitable are these arguments? Whom do they serve? Our attempts as educators to assert a narrow conceit as a foundational pedagogy, to elevate one branch of architectural education among many to a position of prominence, fail to consider how learners shape their own education based upon personal beliefs and preferences. Considering the range of incoming students' backgrounds and experiences, it is highly unlikely that they would approach architecture as a field in the same way. Furthermore, what do our pedagogical conceits imply about our attitudes toward our students? Do we assume that our conceits are theirs? Perhaps we conceptualize young learners as blank slates and, worse, assume the universality of students' receptivity to the approach that best suits us.

### **Transitions in the Student Population**

Even if a pedagogical correspondence between teachers and students could have been assumed during the early history of formalized architectural education, the make-up of universities has grown increasingly diverse over the past few decades. More women and minorities now attend college and seek to participate in professional fields. In addition, the numbers of students who speak English as a second, or even third, language have grown as the population has shifted and opportunities for international students have expanded. Furthermore, student populations now range considerably beyond these obvious characteristics: increasing numbers of students come from rural and economically disadvantaged neighborhoods questioning many long-held assumptions of the prevailing middle-class suburbanites whom commonly fill the academic ranks. Although teachers easily recognize and may attempt to address the differences in worldviews among those readily identified as diverse, it is the students with hidden diversities that present particular challenges that may go overlooked.

Sociologist Pierre Bourdieu spent much of his career exposing the unacknowledged and unspoken biases upon which we base our most loudly spoken evaluations. He coined the phrase 'cultural capital' to express the accumulation of privileged experience that advantaged people

value. As educators, our preferences for particular pedagogical philosophies may have the unintended consequence of rewarding students with similar cultural capital while dismissing the perspectives of those who are dissimilar.<sup>1</sup> At eighteen or nineteen years of age, beginning design students may have developed limited means through which to comprehend architecture. Students with cultural capital in the form of a background in dance or ceramics might be more receptive to a phenomenological approach while students steeped in literature might perform best in a narrative-oriented studio. Yet, this will depend in large part on whether or not the ceramics, dance or literature is of the same (Western) type as that valued by the teacher.

Of course, changes in the student population are only half of the diversity issue. The profession itself has also changed. Not only do schools of architecture draw more diverse students, but also the practices in which these students will engage require performing a wider array of tasks, for a wider audience, using a wider range of technology. Dramatic shifts in clientele have led professionals to take larger roles in searching for design solutions for low-income and developing-world populations while simultaneously meeting the demands for higher quality designs for the middle-class. Students aware of and sympathetic to these trends may have difficulty accepting instruction that fails to address these changes in favor of narrower pedagogical presumptions. In this way, our tendency to view pedagogical approaches as either-or selections with quasi-moral consequences make it difficult for incoming students with differing perceptions to incorporate new information and ways of seeing.<sup>2</sup> As students repeatedly encounter these disconnects between the instruction they receive and their own cultural capital, they may internalize the conflict and abandon the field entirely.

### **Analysis of Architectural Pedagogical Literature**

To ultimately discover better ways to educate diverse beginning design students, we decided to review the existing literature of pedagogical approaches used in design studios and reinterpret previous studio projects as a way to demonstrate the benefits and challenges of tailoring instruction to the learners. To this end, we reviewed the past twenty years of articles from the *Journal of Architectural Education* from 1985 through 2004 inclusive. We hoped to find articles from various theoretical approaches focusing on beginning design studios that we could reexamine using learning theory and that doing so would give us insight into how instructors may connect with and accommodate diverse learners in studio courses.

In our review, we initially categorized the articles as education-specific (e.g., articles suggesting course content, explaining instructional approaches, or describing studio projects) or non-education-specific (e.g., articles discussing building or graphic technology, reviewing buildings, or general theories/approaches to practice). Despite the journal's title, the majority of articles were not education-related. In fact the percentage of education-specific articles varied from a high of 42% to a low of 11% of the total number of articles for any given calendar year and only averaged less than one quarter over the entire twenty years. While this scant amount of resources would be troubling enough, we were particularly disturbed to find that the past five years included the lowest proportion of education articles (see Fig. 1).

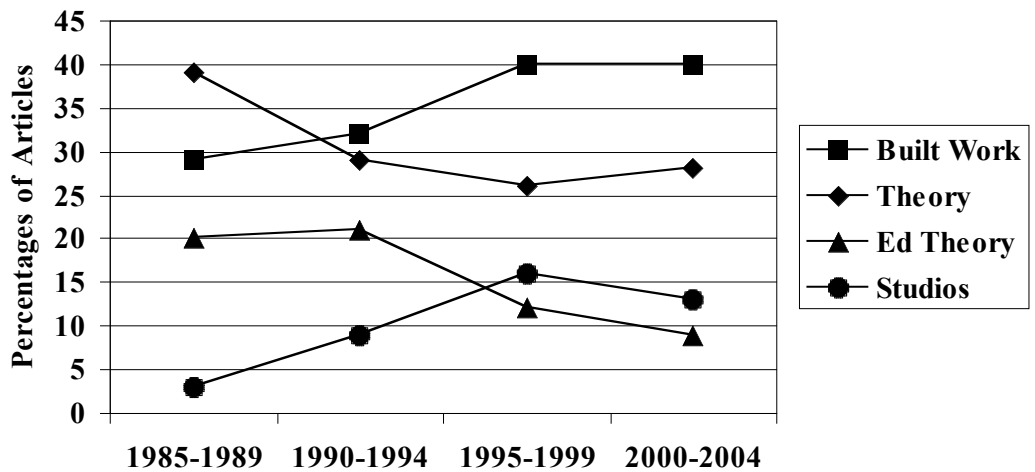


Fig. 1. Trends in Percentages of Published Articles that Focus on Built Work, General Design Theory, General Educational Theory, and Studio Instruction.

We further examined the education-specific articles to distinguish between those that detailed actual instruction in studio courses from more general discussions of pedagogical theory including articles that addressed suggestions for particular course content. Of the 135 education-specific articles, only 55 articles recorded actual instruction in the studio setting and a mere five addressed design studios conducted with first-year students. Although we did not expect to find an extensive literature on this limited topic, we were astonished to find such a dearth of records across a twenty-year span. However, one comforting trend was noted in that articles describing actual studio instruction were increasing out of the few education-related articles printed. We hope this trend is driven by a positive intention to share ideas and techniques in a less dogmatic way and not a retreat from discussions of more general pedagogical theories.

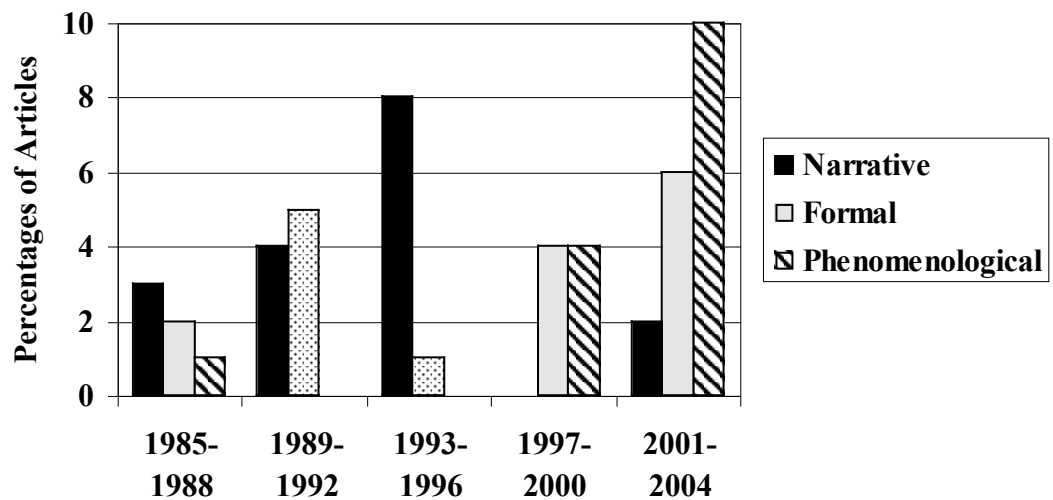


Fig. 2. Trends in Pedagogical Approaches in Studio Instruction.

In an attempt to determine trends in pedagogical philosophies, we examined the 55 studio articles as to the approach used. While the overall figures for the approaches did not vary much (for the phenomenological, formalist, and narrative approaches there were 15, 18, and 17 articles respectively), some interesting trends did emerge (see Fig. 2). Articles documenting formalist and narrative approaches have been published most consistently across the years; however, articles describing narrative approaches peaked in the mid-1990s with few only two publications since that time. Articles relying on phenomenological approaches are much more recent with only one publication before 1998 and now comprise the majority of pedagogical articles published. Given the limited number of articles actually published on studio instruction, it would be impossible to generalize these trends to the actual instruction delivered in studio coursework. It may be that instructors' distaste for writing along with the preferences of the various editors have led to spurious findings; however, it does appear that phenomenological approaches are gaining prominence in general theoretical discussion of design.

### **Introduction to Constructivist Learning Theories**

In seeking new ways to address the increasing diversity of architecture students, we sought out ideas from educational psychology that can inform instruction by understanding how people learn. We found extensive research documenting individual and group differences in learners as well as the effects of instructional strategies and approaches on academic engagement and receptivity to curriculum.

In particular, we felt that the ideas of constructivist learning theory, which addresses ways learners actively create and frame their knowledge as well as how they incorporate it into their identity, was useful in understanding how students learn in creative fields such as design. The underlying assumptions of constructivist learning theory are that (1) learners are actively engaged in tasks not passive recipients of knowledge, (2) knowledge is constructed rather than acquired, and (3) learning occurs through engagement with cognitively challenging tasks in a social environment not through the unidirectional transmission of information.<sup>3</sup> Two leading constructivist theorists, Jean Piaget and Lev Vygotsky, proposed that as learners engage in cognitively demanding tasks that are beyond their current skill level, they must make shifts in their thinking processes<sup>4</sup> and engage with more skilled persons<sup>5</sup> to expand their understanding. Such that as learners engage with the world, they develop multiple ways of knowing that in turn shape their receptivity to new information.<sup>6</sup>

When constructivist theories guide instruction, classrooms begin to look much less like the traditional lecture halls and much more like the problem-solving labs or studios. Initially instructors must determine what content knowledge and skills students currently have and what kind of learning outcomes they desire. Then instructors can plan instructional approaches that maximize the types of social interactions that lead to these desired outcomes. According to constructivist thought, instruction is best targeted toward new skills that are just beyond the students' current level of functioning, referred to as the *zone of proximal development*, as this includes the content and skills in which the student will next progress.<sup>7</sup> Furthermore, instructors must consider whether the content and skills to be learned, or outcomes of instruction desired, are the same for all learners, *convergent learning*, or different for each learner, *divergent learning*.<sup>8</sup> Depending upon these desired outcomes, different cooperative learning strategies can be employed to ensure the necessary social context for the construction of knowledge.<sup>9</sup> Moreover, as the learning process evolves, constructivist instructors conduct several *formative evaluations* of students' progress as the result of their instructional approaches and make adjustments as needed to attain the desired outcomes rather than traditional *summative evaluations* that only assess student outcomes at the end of the learning task.<sup>10</sup>

## **Application of Constructivist Theories to Studio Projects**

As we, the authors, have not personally wedded ourselves to a particular theory about design, nor do we intend to speak only to those who would share our approaches, we have chosen to examine how constructivist theories may be applied to any of the three previously discussed approaches to design instruction as these ideas can help educators meet the more general goals of all architectural education programs—that of producing unique artists who will meet their clients needs in innovative ways. Of the five beginning design studio articles identified in our literature review, three relied on phenomenological approaches and one each relied on formalist and narrative approaches. From these we selected one article from each approach that we would examine through a constructivist lens to determine what underlying assumptions can be discerned about the learner and knowledge in general and what match exists between the instructional practices used and the expressed goals of the instructor. After brief descriptions of these studio projects, we will detail ways the projects mesh with or differ from constructivist approaches and offer suggestions for improved integration of constructivist theory to improve student engagement for these studios. These projects, selected as typical examples, can serve as models of how constructivist ideas can be incorporated into educators' instructional practices.

### **Formalist Beginning Design Studio Project**

The sole example of a beginning design studio project utilizing a formalist pedagogy was MIT's "The Building Store." This studio was a kit-of-parts project in which students were presented with a limited range of wood blocks, sticks and panels from which they were to solve simple design problems such as a renovation of a backyard swimming pool or workroom. Students were intentionally given too few blocks to construct their solution in its entirety so as to encourage an incremental design process and introduce drawing as a method of recording that process.<sup>11</sup>

In this project, the instructor(s) used constructivist approaches in that students were assumed to be active constructors of knowledge in their responses to the design challenge. Furthermore, the instructor(s) focused on providing opportunities to explore multiple ways of gaining knowledge rather than transmission of specific information. However, the instructor(s) utilized only individual instructional approaches forgoing the benefits of cooperative exploration and failed to formatively evaluate their instructional strategies and approaches incorporating feedback from the students' successes and failures in achieving the goals of the project. Furthermore, despite their stated goals of divergent outcomes, the instructor(s) explicitly stated expectations of convergent learning in the development of "spatial perceptions in use, structuring principle, and the mechanics of language" as a result of this project.<sup>12</sup>

Our suggestions for incorporating constructivist theories in this project include changes in both instructional and evaluation strategies. First we suggest an initial assessment of students' zones of proximal development by informally inquiring about past experiences with the design problems given (e.g., knowledge of and experience with backyard swimming pools) and a formal arrangement of cooperative groups based on differing levels of this initial knowledge. Additionally, group interaction could be facilitated by giving students different wooden components; thereby, necessitating collaboration for exploration of design solutions. Lastly as part of the evaluation process, we would encourage educators to provide opportunities for students to share the knowledge gained from the project and reflect on it.

### **Narrative Beginning Design Studio Project**

The sole example of a beginning design studio project utilizing a narrative pedagogy was UC, Berkeley's "House for an Ancestor." The stated goal of the project was "to push students toward a personal engagement with history and culture" via construction of a "memory book" or

journal related to an ancestor (real or imagined) and by designing a house for that ancestor in clay.<sup>13</sup>

In this project, the instructors used constructivist approaches in that students were assumed to be active constructors of both personal and cultural knowledge in their responses to the design challenge. As with the previous project, the instructors focused on providing opportunities to explore multiple ways of gaining knowledge rather than transmission of specific information. Yet more closely fitting constructivist approaches, in this project, the instructors expressly sought divergent student outcomes as a marker of success for the project. Again, though, the instructors utilized only individualized instructional approaches and thereby failed to capitalize on potentially enlightening dialogues among the students in cooperative groupings as they explored cultural and personal experiences. Furthermore, the evaluative strategies employed neither prescreened students to ensure that the task was within the optimal instructional zone nor did the summative evaluations focus specifically on the student outcomes, instead including inappropriate personal reflective comments about the physical characteristics and personalities of the students.<sup>14</sup>

Again, our suggestions for incorporating constructivist theories in this project include changes in both instructional and evaluation strategies. First we suggest an initial assessment of students' zone of proximal development by asking students to expound on their current depth of knowledge of their ancestry; this could be conducted using a simple reflective writing assignment. In addition, formal arrangements of cooperative groups could be organized based upon cultural dissimilarity as well as similarity. For example, initial pairings could be arranged with students of dissimilar cultures to explore cultural differences between ethnicities through juxtaposition while later pairings could be arranged with students of similar cultures to explore personal differences within similar ethnicities. Finally, the evaluation process would be enhanced by involving collective critiques among students and personal reflections by students of their increased knowledge compared to their initial writing assignment.

### **Phenomenological Beginning Design Studio Project**

We found three examples of beginning design studio projects utilizing a phenomenological pedagogy. Because no project fits absolutely within the confines of one pedagogical classification, we based our selection on relative closeness of fit and selected University of Nebraska-Lincoln's "Everyday Geometries." The goal of this studio was to explore the concept of looseness-of-fit between geometric architecture and the activities conducted within the space. Students used a variety of techniques (e.g., photography, modeling, and 2-D mapping) to investigate and compare the physical space of a dorm room and the used and unused spaces within.<sup>15</sup>

In this project, the instructors used constructivist approaches in that students were assumed to be active constructors of knowledge in their creative solutions to the problem of mapping experience of inhabited space. Yet again, the instructors focused on providing opportunities to explore multiple ways of gaining knowledge through learning mapping techniques rather than transmission of specific information; however, this knowledge was limited by the individual nature of the investigations. Nonetheless, this studio utilized the most constructivist evaluative approaches of the projects analyzed in that student outcomes were "determined in reflection, not *en charette*" as the students contemplated their investigate findings.<sup>16</sup> Despite these individualized reflections, the instructors stated that they expected the students to develop convergent learning about the relationships between and among the fixed, occupied, and interstitial spaces in architecture as a result of this project. Furthermore, the instructors tended to anthropomorphize their descriptions of these spatial relationships minimizing the effect of personal interpretations on space.

Once more, our suggestions for incorporating constructivist theories in this project include changes in both instructional and evaluation strategies. First we suggest a formal arrangement of cooperative groups to enhance the richness of the investigations of occupied space. And second, we feel that when evaluations contain anthropomorphist comments, the personal nature of interpretation is denied and the beliefs of those in positions of power are accepted as reality. Therefore, we suggest that instructors become more willing to own their own thoughts and feelings about the content and knowledge to be gained submitting them for public scrutiny to allow students to develop their own interpretations.

### **Concluding Thoughts for Educators**

From our analyses, we feel that the current practices in architectural education correspond well with the principles underlying constructivist learning theories. Further incorporation of these principles would allow educators to encourage students to develop more fully their unique voice in creating designs not limited by the constraints of current knowledge. So, as educators we need to become more aware of the benefits of using the social context of learning and formative evaluations in the development of divergent learning. Making room for students to explore ways of acquiring knowledge also validates the multiple pathways to knowledge giving power to those voices who have been traditionally silenced in architecture.

### **Notes**

1. Pierre Bourdieu, *Distinction: A Social Critique of the Judgement of Taste*, translated by Richard Nice (Cambridge, MA: Harvard UP, 2000). See also, Gary Stevens, "Struggle in the Studio: A Bourdivin Look at Architectural Pedagogy," *JAE* 49, no. 2 (1995): 105-122.
2. C. Grieg Crysler, "Critical Pedagogy and Architectural Education," *JAE* 48, no. 4 (1995): 208-217.
3. John A. Zahorik, *Constructivist Teaching*, Fastback (Bloomington, IN: Phi Delta Kappa Educational Foundation, 1995)
4. This idea comes more directly from Piaget's ideas about cognitive development. For an introductory explanation of Piaget's theories see John W. Santrock, *Educational Psychology*, 2<sup>nd</sup> Edition, (Boston: McGraw Hill, 2004): 39-50 and Robert E. Slavin, *Educational Psychology: Theory and Practice*, 5<sup>th</sup> Edition, (Boston: Allyn and Bacon, 1997) 32-45.
5. This idea comes more directly from Vygotsky's ideas about cognitive development. For an introductory explanation of Vygotsky's theories see Santrock, 51-56 and Slavin, 46-51.
6. Zahorik, 13.
7. Santrock, 51-52.
8. Zahorik, 20-21.
9. Many researchers have explored the use of cooperative learning groups to achieve many differing goals. Those interested in learning more about the essential components of cooperative learning groups are encouraged to examine the many works of David and Roger Johnson such as *Learning Together and Alone* (Boston: Allyn & Bacon, 1999) and *Joining Together: Group Theory and Skills* (Boston: Allyn & Bacon, 2003). Those interested in the various configurations of cooperative learning groups are encouraged to examine the research of Robert Slavin concerning mixed-ability groups using the STAD approach, Eliot Aronson concerning the Jigsaw approach, Shlomo Sharan concerning the Group Investigation approach, and A. S. Palincsar and A. L. Brown concerning Reciprocal Teaching.
10. For a more complete definition of these terms regarding classroom assessment, see Santrock, 522-523. For a greater understanding of assessment from a constructivist perspective see Thomas M. Duffy and David H. Jonassen, *Constructivism and the Technology of Instruction: A Conversation*, (Hillsdale, NJ: Lawrence Erlbaum, 1992).

11. Carmen Corneil, "The Building Store: Direct Modelling (sic) as a Studio Process" *JAE* 41, no. 1 (1987): 46-53. The article describes multiple versions of the Building Store project taught at various year levels. For the purpose of our research, we examine the studio only as taught to first year students.

12. Ibid.

13. Ralf Weber and Anthony Dubovsky, "House for an Ancestor: Introducing Design through Visions in Clay," *JAE* 47, no. 3 (1994): 169-177. Quote found on page 169 of the article.

14. Ibid.

15. Jeffrey Day and Brian Rex, "Everyday Geometries: Synthetic Facts and Superficial Qualities," *JAE* 57, no. 2 (2003): 29-35.

16. Ibid., 32.