

UNSTAKED TERRITORY: Frontiers of Beginning Design

Proceedings of the 19th National Conference on the Beginning
Design Student, Oklahoma State University, Stillwater, Oklahoma
April 3-5, 2003



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Challenging The Boundaries I
Challenging The Boundaries II
Integrating The Boundaries
Obscuring The Boundaries
Various Terrains
Initial Terrain

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Distanced From Actuality: Toward Theory for First Year Pedagogy

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In a recent lecture to first year design students, 5 apples were laid on a desk and students were asked what they saw. Then they were shown a slide of 5 apples and asked what they saw. Then a picture of 5 apples was drawn on the chalkboard and students were again asked what they saw. Then we made five random marks on the chalkboard and called the "5 apples." We then drew the number 5 on the chalkboard and called it "5 apples." Lastly, a single random object was displayed and called, "5 apples."

In the space of a few minutes this demonstration illustrated an index of transformative processes that moved from actuality to symbolic logic through the domain of distance. This sequence, characterized as the "apple schema," established the ground for an investigation into learning strategies used by typical beginning design students. In comparison to a student's other educational experiences, the non-linear character of the design process often seems chaotic and abstract. A student's initial experience with design projects, in contrast with that of writing an essay or solving a physics problem, often becomes one of insecurity and confusion¹. Beginning design students, asked to *think about design* for the first time, have yet to develop a cognitive skill-set for dealing with *ways of thinking* that are distanced from the everyday experiences of their lives. The *apple schema* is presented to students as an object-lesson, not as an imposed heuristic mechanism, but as a measure of their own development of the *awareness of the difference between concrete and abstract ways of working*. The intent of the schema is to function as an index or map for navigating from concrete to abstract thinking through cognitive reasoning, and in so doing help to enable development of a cognitive operational structure for creative design thinking. While this paper presents an attempt to explore and define this structure, our intent is to elucidate this structure as a preliminary to lessons that first year curricula typically address but may not impart expressly as *connective learning experiences*. It is our contention that this must occur as a primary first year learning objective.

Making Connections

“The actual design process is a geographic exploration: the explorer’s expectations and goals change as more is learned along the way, a satisfying resolution only achieved when there is a sense of having gone someplace and returned with the catch. What is important for this sort of explorer is to have schematic notions that guide one along the way, at the right scale so that irrelevant detail or gross features are kept at bay” 2

Design thinking involves making connections. Making connections requires a referential framework or connective structure, which most typically occurs through cognitive awareness. However, cognition can only be achieved by employing a system of interactions in connecting disparate points of knowledge, memories, representations, and experiences. Not until students can actively operate upon or within such a structure will they be able to creatively manipulate, and/or manage, the component aspects of design activities necessary to *creative design thinking*. Fundamental to this understanding is that such aspects can be structured. The *apple schema* elicits a structure that directly relates to a student’s everyday life experiences, yet is also analogous to learning experiences that are typical to first year design studio education. The *apple schema* presents relationships to the concreteness of the physical world (and therefore past experiences, i.e. the physicality of apples) and simultaneously elicits connections to the realm of ideas and concepts, many of which may already be enacted through a student’s own ‘sets of rules,’ without specific or cognitive relation to anything concrete.

The range from concrete-to-abstract pervades all cognitive activity. Beginning design students are being asked, by the very design activity with which they are engaged, to develop intentions related to this structure that they will be able to rationally explain. Most are put to great task intellectually and emotionally by the challenge this presents. If left without a grounding or anchoring in the concrete world, many students become mired in a state of doubt, where the structure of their worldview and everyday lives becomes unseated and is not readily redeveloped anew. Loosened from their ontological anchorings many are simply unable to realize or grasp any substantive structural relationship to their first design experiences. In trying to keep up with the rigor of it all, some students simply play along in hope that it will begin to make sense at some later point.

Students May Not Know What They Are Getting

Many design programs ascribe to a beginning design pedagogy which holds that abstract learning is simpler and more fundamental and therefore should be taught first (a methodology possibly borrowed from art practice³). Likewise, pedagogies that are immersive in "full blown architectural issues" as first learning experiences, or those that

prioritize abstracted and fragmented experiences, are presuming to define student reception of learning outside of any concrete engagement with the built environment. Assignments that are reductive, categorized, limited, and/or focused, concentrate on explicit aspects of the design of the built environment that are objectivized and detached from any direct context of engagement (i.e., non-contextualized aspects such as: point, line, form, rhythm, plane, texture, color, volume, balance, proportion, scale, 'kit of parts', etc.). Underlying the pedagogy of teaching these exercises first is that they will allow students to develop *cognition for design*. However, students frequently emerge from these type of 'learning experiences' believing design of architecture occurs from an 'assemblage' of components or elements. Consequently, students become *trained* to execute, through the manipulation of these aspects and parts, but are not necessarily *educated* for broader comprehension or deeper understanding. These methods presume the beginning student can already deal with higher order abstract learning and/or will either "get it," or make sense of it on their own somehow, at some later point in the curriculum. Some students do and some don't, depending to a large extent on their personal ontologies.

A design pedagogy that prioritizes abstract learning, and/or the abstracting of design process over concrete experience, portends to deny that abstraction *must*, by definition, be built upon concrete experience.⁴ Teaching "abstraction first" may not intend that abstract learning can occur in absentia from its concrete basis, though this is the resultant learning outcome of many first year pedagogies. A bias toward abstraction as a basis for first year pedagogy, without comprehension of the origin of that abstraction, is often misleading to the student. If human experience of architecture is the combination of concrete matter and perceptual experiences, then the design of architecture would logically necessitate inclusive comprehension of both. Human perception is not an abstract act or an act of interpretation; it is simultaneously concrete and abstract.

It is our contention that for most beginning design students, seeing the world as an architect for the first time is disconcertingly abstracted from what they have come to understand as their own human experience. Presented with seemingly unrelated abstract thoughts and actions, students can become disengaged and ungrounded, left to perceive their success in simply seeking and then following 'rules' without question or understanding. In unwittingly choosing, then, between an '*abyss of doubt*' or the '*safety of doctrine*,' many students fail to realize their full potential for creative thinking and designing. Learning solely through cognitive abstractions does not equal comprehension or understanding. However, to move analogously from five physically real apples to symbolic logic can enable students to see that the distance created through abstract design activities distorts actuality by seeking a clarity that may not exist in practice. Concrete engagement with the actual world can reconnect processes of detachment, if understanding of

intelligence can be distinguished not through the precise actuality of the object but as a phenomenological rendering of knowledge as a transformative mechanism of realization.

Comprehension from Distance: A Diagram of Connections as a Pedagogical Underpinning

On a path of learning experiences from the concrete to the abstract, and back again, we encounter a broad range of design thinking. The “apple schema” frames such a dialogue between the student, design activities, and the designed environment. The development of this as a pedagogical directive requires first that concrete and abstract modes be modeled as an index of relationships in which the acts of designing *and* experiencing the world correlate with processes of *abstracting* and *making* concrete. Diagram 1 represents this as an indexed relationship with acts of designing in parallel correlation to experiencing-the-environment. Predicating this indexing of relationships is an understanding that learning to design necessitates the development and internalization of connective structuring mechanisms that operate on design decision making. Diagram 2 illustrates that learning experiences range from the *immediate* (direct experience) to the *meta-cognitive* (abstract understanding). Finally, Diagram 3 situates this index of learning experiences with parallel mechanisms of design and design visualization.

Using this index to develop pedagogical structure for first year inquires and teaching strategies can potentially innervate projects, exercises, and assignments with a connectedness that students can experience directly within engagement with their own work. As a set of learning experiences, student project-oriented design inquires framed by this index can more readily enable and expand intrinsic ways of thinking, over time resonating within the individual as a heuristic frame for independently developing design thinking and creative inquiry. The index arranges those activities that designers do into a connective structure associated directly with attainment of meta-cognitive abilities that are at the root of dynamic design activities. Meta-cognition is the ability to think about thinking for both concrete and abstract manipulation of the relationships between ideas and between ideas and concrete things. Cognition becomes operative in design through processes of positing, experimentation, and informed evaluating and deciding. Once interiorized by students, the structures of the index mark the first steps toward an ability to *think about thinking* for active engagement in designing. Psychologically, interiorization of a referential structure marks a reconnection of a student with their own actuality, enabling them to begin to think for themselves, which is a contingent construct of intelligence at the core of a functional design decision-maker.

Conclusion

Typical beginning design students have a perspective that the first year learning experience is a disjointed sequence of abstractions, cut off from any experience they may be grounded in. While it is true that 'seeing the world as an architect' for the first time is atypical from what they have come to understand as their own human experience, beginning design students often find themselves in a groundless circumstance of learning. Part of the reason for this is due to what we are conjecturing in this paper - that this 'distancing' between reception and engagement caused by first semester project inquiries, is due in large part to students' inability to structure disparate design activities in ways that situate concrete experiences so as to make sense of the tools of design and visualization (i.e., direct and indirect interpretations, reductions, representations, analyses, and ideas). Such assignments fragment the world and do not enable a personal stake in doing them. Our contention is that the structure of connections implied in the "apple schema" is necessary to first year design education. It is not our intent to set forth an ideal model for the development of awareness of a structured concrete-to-abstract relationship. This paper intends merely to point out the necessity for a pedagogy that may enable beginning design students to build greater connectedness between their actions and thoughts. In so doing, operative connections can be built between those devices that designers use in the performance of design that create distance from, and connection to, actuality. An understanding of structured relationships is away of making sense of the disparate forms of design practice that students are first experiencing in beginning design studios. If this structure can be embedded within the experience of assignments, each student will become better equipped to discover and make connections creatively, as individual epiphanies, illuminated in experiential awareness.

It may be argued that the fragmented confusion of first year educational experience is a pedagogically necessity to allow them to work out for themselves the need for structure when they are ready, to make up their own mind about their own lessons of learning. Yet there is every reason to present possible structures to them as an embedded artifice of their learning experiences. Learning about a structure of connections is important because it provides an individual developmental context for learning experiences in lieu of escape into the "abyss of doubt" or the "safety of doctrine." How often it is heard in upper level studios, in reference to the enlightenment that comes from finally situating learning experiences into a personally developing structure, "*Why didn't they just TELL us that in first year?*"

Notes

- 1 . Hannigan, Jeffery. "Interactive Learning / Learning Interactive." *Proceedings of the IDSA National Education Conference*, 1999. Peter Rowe makes reference to designing as being full of irregular modes of operation. Further he characterizes design "problems" as either *well-defined*, *ill-defined*, or *wicked*. Indeed, most first year students encounters with typical first year design investigations are experienced as wicked problems. Rowe, Peter. *Design Thinking*. Cambridge: MIT Press. 1987.
- 1 . Kreiger, Martin H. *What's Wrong with Plastic Trees: Artifice and Authenticity in Design*. Praeger Publishers, London. 2000. p. 129.
- 1 . There is a widespread practice of teaching fundamental art courses with a basis in 'formal elements' followed by 'principles of composition,' with follow-up application to analysis of historical art forms. A typical example title following this vein is, *The Visual Arts Companion*, by Larry Smolucha, Prentice Hall, Englewood Cliffs, NJ 1996.
- 1 . Abstracting is transformative movement away from the concrete as if drawn out or drawn from the concrete as a continuum from the particular and sensorial to the general and symbolic. Definition of abstraction derived from the *American Heritage Dictionary of the English Language*, William Morris (Editor), Houghton Mifflin, Boston, 1998.

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