A History of the Studio-based Learning Model

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Studio-based instruction and learning has become a hot topic in K-12 education today. Knowing the origins of studio-based learning in education, as well as in art and architectural education can provide us with a deeper understanding of the purposes and goals of studio-based methods. Much can be gained by educators taking a second look at previous educational system models developed prior to the turn of the century for guidance in translating the new popular studio-based learning model developed in architectural education.

Origins of the Studio-based Learning in Education

Boyer and Mitgang argue that ìArchitecture, by nature and tradition, holds vast potential as a model for the integration and application of learning, largely because of its most distinctive feature ñ the design studioÖBeyond question, the design studio is a model that many other disciplines on campus, as well as elementary and secondary schools, could well profit fromî (Boyer & Mitgang, 1996; 85). Interestingly, the studio-based model of learning has its origins in the US in public education as far back as Horace Mann. In many ways, educators can learn much about the applications of studio-based learning from their own history.

Although not called specifically studio-based learning, a similar model had been experimented with in public education with the Parker School in Quincy, Massachusetts in the late 1800s organized by superintendent Francis W. Parker who advocated a more child-centered approach to education that later became known as the Quincy System. Student interest and motivation were central to this model, as where an integrated curriculum, active learning, learning by doing and expression through the arts. Movement through the system included demonstrated performance, primarily through exhibitions and long-term projects. Small classes and an advisory system enable teachers to know their students well. And teachers design and revise the curriculum to reflect student interests and needs and to promote engagement.

John Dewey was, with the establishment of the Laboratory School in Chicago in late 1800s, exploring some of the same issues connected with studio-based learning in which he borrowed from some of the insights of Froebel similar to

the Bauhaus of architectural education. Finally, superintendent William Wirt's "platoon system" at Horace Mann High School in Gary, Indiana in the early 1900s owes much to the ideas of Dewey and the studio-based learning as well. Students spent at least one hour a day in the auditorium giving lectures, questioning one another's presentations, putting on plays, viewing films or reciting poetry. At night, they returned with their families. The Gary schools had adjacent parks, zoos, and a farm where students harvested crops. Students learning printing skills produced school materials. Activity-based learning and the schoolís role in the community were emphasized (Hoff, 1999).

Origins of the Studio-based Learning in Architecture

The European tradition has greatly influenced North American architectural education. Looking to Europe for a standard, as Americans often did in the nineteenth century, many aspiring students of saw the prestigious Ecole des Beaux Arts in Paris as the ultimate in architectural training. The Ecole's philosophy was imported to the United States, and most architecture schools in the early part of this century had at least one Paris-trained professor. The cornerstone of the Beaux Arts system was the "design problem" assigned to the student early in the term and carefully developed under close tutelage. It began as an esquisse, or sketch problem, and ended en charrette. Charrette, French for "cart," refers to the carts in which the finished drawings were placed at the deadline hour for transport to the "master" for critique. The Beaux Arts teaching systems relied heavily on brilliant teachers and learning-by-doing. Competition was intense and the end results were beautifully drawn projects in traditional styles which were often defensible only on grounds of "good taste" and intuition. The style was mostly neoclassical and the favorite building type was the monument. Projects were judged by a jury of professors and guest architects, usually without the students present. The jurors used the same criteria by which the students designed-"good taste." (Most schools still use some type of "jury" or review system today.)

The University of Oregon architecture program, founded in 1914, was the first in the United States to adopt two basic elements of the "modern" movement in architectural education. These are affiliation with all the allied arts (painting, crafts, sculpture, etc.) rather than with engineering, and a non-competitive, individual approach to learning.

Columbia University made a dramatic shift in 1934 away from the French methods toward those of the modern German movement exemplified by the Bauhaus school. The Bauhaus, formed in 1919, moved to its famous Dessau, Germany, location in 1925, but was closed down by the Nazis in 1933. The influence of that school was felt throughout the world. Its director, Walter Gropius, said that design was neither an intellectual nor a material affair but simply an integral part of modern concepts of mass production and modern technology, which the Beaux Arts had refused to accept. Instruction at the Bauhaus was of a practical nature, providing actual work with materials in the shops and on buildings under construction. In 1936, Walter Gropius came to the United States and from 1938 to 1952 was head of the architecture department at Harvard University. Also in 1936, Harvard integrated architecture, landscape architecture, and urban

planning into a single school-the triangular model of many schools of environmental design today.

Although the Bauhaus School was a challenge to the Beaux Arts tradition of education, the basic form of studio-based learning model remained unchanged. It can be argued that the studio-based learning model was first developed as part of arts education and training and only later adopted by architectural education in the 1800s. The origins of studio-based learning have their roots further back to the notion of the apprentice in the atelier and even further to the guilds of the Middle Ages centered primarily on the arts and crafts. Apprentices worked and learn skills in the studio of the master designer or artist. Young apprentices did not learn in isolated schools, but were exposed to the adult world and worked among adults on real products in the community. The Bauhaus school was in many ways an extension of the apprentice system in which students gained mastery of certain technical skills in several disciplines, obtained aesthetic training in applying these skills in the age of modernity, and required to pass journeyman tests to obtain cards for various disciplines in order to have an employable skill when graduating.

A Description of the Design Studio Model

The design studio is a type of professional education, traditional in schools of architecture, in which students undertake a design project under the supervision of a master designer. Its setting is the loft-like studio space in which anywhere from twelve to as many as twenty students arrange their own drawing tables, papers, books, pictures, drawings and models. In this space, student spend much of their working lives, at times talking together, but mostly engaged in private, parallel pursuits of the common design task (Schon, 1983). "It is a process, a way of thinking during which the many elements, possibilities, and constraints of architectural knowledge are integrated. At its best, the design studio sequence provides the connective tissue that brings together, progressively, the many elements of architecture education" (Boyer & Mitgang, 1996; 85-86).

Ernest L. Boyer and Lee D. Mitgang in their highly influential report entitled, ìBuilding Community: A New Future for Architectural Education and Practice state, ìWe became convinced, however, that the core elements of architectural education ñ learning to design within constraints, collaborative learning, and the refining of knowledge through the reflective act of design ñ have relevance and power far beyond the training of future architectsÖThe basic canons of design education to be found at the nationís 103 accredited architecture programs could be as enriching for students of all ages and interests as they are for aspiring architects, if only they were better known and more widely appreciated. We concluded, in short, that architecture education is really about fostering the learning habits needed for the discovery, integration, application, and sharing of knowledge over a lifetimeî (Boyer & Mitgang,1996: xv-xvi).

The most important part of the architectural studentís education and the core of the architectural curriculum is the design studio. For instance, experience has shown that students learn technical skills more efficiently and incorporate them more readily into the building design process when the skills are acquired on an as-needed basis during ongoing design projects (Allen, 1997). ìAll

courses are secondary to the studio assignment, both in terms of the number of units and hours devoted by students in this atelier-like setting. Each term, students evaluate their studio by the problem or problems given and by the professor. The studio problems are important first because they must hold the studentsí undivided attention for a term, and second because students include these design solutions in the portfolios they later present to prospective employers Likewise, the studio instructor will be their semester-long guide into the mysteries of design. The typical studio instructor is a practicing architect who provides a living example of what it means to be a designer. In studio, students gather the individual instructorís method and Weltanshauung, and with each new studio another possible approach to architecture is layered upon the last, from which students will determine their own professional course (Cuff, 1991; 121).

Elements of the contemporary architectural studio model as it is practiced in schools of architecture in North America includes the design problem/project, periodic lectures, desk critiques, juries of preliminary and final design products, and the exit interview.

At the beginning of a semester, a design problem is introduced by the studio professor to be solved over the course of the semester or part of the semester. The design problem is given in the form of a brief or program that outlines client goals, user requirements, site conditions and other technical information that may be acting as a constraint on the problem. The problem may be a hypothetical design project developed to explore specific aesthetic, functional and/or technical issues, or the problem may be modeled closely after an actual project under consideration in the community with all its constraints, political, social/cultural, organizational, economic and technical.

Background knowledge about the stated design problem, its context, history and importance must be examined before any meaningful response can be developed by the student. During the early stages of the design project, students may be asked to collaborate in doing research on the general issues surrounding the design problem to be shared with the entire studio class. As the design project progresses, more of the studentsí work will be of an individual nature resulting in a variety of alternative design solutions some similar to each other, others radically different. In addition, supplementary lectures from the studio professor on various aspects of the problem are often given on a weekly basis to the entire studio class in which a number of design precedents are reviewed and critiqued. In addition, the studio instructor may provide lectures and demonstrations concerning special skills and techniques that will be required to successfully address the problem.

The desk critique - or ìcritî as it is often called ñ involves an active twenty to thirty minute one-on-one dialogue between the student and studio instructor which acts as an often daily or twice weekly form of critical feedback on both the studentís process and product surrounding the design problem. During the desk critique, the studio instructor reviews the student's progress in solving the design problem by reviewing the studentís preliminary sketches, two and three dimensional drawings, detail drawings, and physical study models. Often these products are required by the instructor, sometimes the choice of the appropriate representation of the solution is left up to the student depending on their level of skill and knowledge. The studio instructor suggests particular revisions in the design that he or she feels will better solve a particular aspect of the problem. Following the desk crit, the student is expected to more fully explore and test

these options and suggestions by revisiting his or her solution. The studio instructor will then review the outcome of the studentís revised solution suggesting further changes and refinements. This process of revisiting and revising alternative design solutions is referred to as ìdesign iterationî. The student may produce dozens of design iterations before the final design solution is arrived at.

Simultaneously, during the desk crit, the studio instructor will critique the quality of the studentís process of design inquiry and ability to reflect on his or her own process of designing. The studio instructor introduces a ìlanguage about designingî (Schon, 1983; 81), a meta-language by means of which the instructor describes some features of the process he or she is demonstrating and with which he introduces to the student, however cursorily, to reflection on the action of designing. In doing so, the studio instructor acts as master to apprentices modeling appropriate behavior, values, design strategies, and thought processes (Schon,1983).

Concurrent with the formal studio desk critique, students will informally critique each others work throughout the semester, and learn various design skills and drawing and model construction techniques from each other necessary to accomplish a particular representation of their chosen solution. Good students exhibit certain behavior: they produce more drawings, sketches, models and studies of alternatives than anyone else, setting the pace for the entire studio (Cuff, 1991; 121).

Another informal aspect of the studio experience is the camaraderie that develops between students over the course of the semester. As one student explained: ìThe long hours of work in a common studio space forged us into a close knit group of men and women who were marked by our dedication, endurance and talent. We shared the excitement of learning to see the world in a new way, of learning to distinguish between well and poorly designed glasses while our friends were drinking coffee unaware from styrofoam cups. We were the imaginative professionals with certified tasteí î (Cuff, 1991; 118). Boyer and Mitgang commenting on the design studio state: ìWe were especially inspired by the design studio, the distinctive holy-of-holies of architecture education where generations of bleary-eyed students have hunched over drafting tables til all hours working on balsa or cardboard creations amid old sofas and soda cans. We are convinced that these studios, scruffy though they may look, are nonetheless models for creative learning that others on campus might well think aboutî (Boyer & Mitgang, 1996: xvi-xvii).

The solution is represented in various evolving forms from sketches to fully developed drawings and models as the student progresses in addressing all aspects, dimensions and scales of the design problem. At various stages during a semester, the student may be asked to present his or her project to a group for a formative evaluation. Student evaluation is structured through a jury system which has the following purposes: criticism of individual studentsí designs, provide general instruction, and initiate scholarly, like seminar-like exchanges, all intended to further the student's growth (Dinham, 1986, cited in Cuff, 1992; 126).

There are at least four distinct and formal phases of critique, the desk crit as discussed earlier, the pin-up, interim or midterm crit, and final crit.

The pin-up involves a form of peer review in which the student formally presents his or her work

to the studio class and the instructor. The student will restate the problem, outline the issues being addressed to solve the problem, present their solution or alternative solutions, and describe the process by which they arrived at a tentative solution. Once the student has completed his or her presentation, the work is open for discussion and critique by the instructor and the class. Both specific comments will be made of the project being critiqued, as well as general comments be made to the class as a whole about certain aspects of the problem raised by the particular project pinned-up. When obtaining general comments is the objective of the studio instructor, the crit may involve the simultaneous critique of as many as three to five projects at one time.

The ìinterimî or ìmidtermî crit is often seen as a warm-up to the 'final crit' where students present their best solution to a small jury that includes other studio instructors from the school of architecture, practitioners, even surrogate users and clients intimately familiar with the design problem in practice. During the interim crit, fellow students look on waiting their turn to present to the jury that can take several hours.

During the final crit or review, many of the same jurists may be in attendance, but often additional, highly regarded and respected jurists are formally invited. Compared to the interim crit, the final review can be a highly formal, rather intimidating ritualized context and reviews can attract large audiences of students and local architects (Cuff, 1992; 125). Evaluation of student work is also more formalized. In some juries, jurors are asked to fill out pre-determined score cards that they pass on to the studio instructor. In recent years, an alternative to the traditional jury-based final review has developed called the Oregon Crit, developed at the University of Oregon. Students display their work similar to a science fair as jurors walk from project to project providing individualized one-on-one critique. Many students find this form of critique less intimidating and feel they learn more from the experience since they in effect present their project more than once over the period of the critique and gain a fuller understanding of their projectís strengths and weaknesses.

Often, the quality of the final product ñ and subsequently the student's performance assessment - is judged solely on the expert opinions of the jury based on criteria predetermined by the studio instructor. More typically, the studio instructor takes the opinions of the jury into account along with his or her impressions of the studentís body of work over the semester in making a determination of the final assigned grade. In some cases, part of the studio instructorís evaluation includes a private ìexit interviewî with the student. The interview allows the instructor to review with the student his or her impressions of the quality of work over the semester. In addition, the interview allows the student to respond directly to the studio instructor's criticism.

Allen, Edward. (1997). Second studio: A model for technical teaching. Journal of Architectural Education, V51, Issue #2, November.

Boyer, Ernest L. & Mitgang, Lee D. (1996). Building community: A new future for architectural education and practice. Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.

Cuff, Dana. (1992). Architecture: The story of practice. Cambridge, MA: MIT Press.

Cremin, Lawrence A. (1961). The transformation of the school.

Schon, Donald. (1983). The reflective practitioner: How professionals think in action. New York: Basic Books.

Hoff, David J. (1999). A blueprint for change. Education Week, V18, N32, 37-43. April 21, 1999