Design-build Studio–A Pedagogical Approach to Shift from Studio- based Learning to Real-world Learning in Architectural Education

Shweta Saxena[1] and Sandeep Arora[2]

[1]Department of Architecture SPA, Bhopal, India
[2]Department of Architecture SPA, Bhopal, India
E-mail: [1]shweta@spabhopal.ac.in, [2]sarora@spabhopal.ac.in

Abstract—*In Architectural education, Design is one of the core subject which acts as a learning platform where the knowledge of all other subjects play important role and finally with this total learning student is prepared to step out of this platform and work for the world outside. But there is a growing gap between architectural education and architectural practice in terms of real- world concerns and this gap acts as one of the reason for students' unpreparedness after graduation. The present patterns of design studio indicate that there is more emphasis on teaching the content rather than on overall learning of the students. So there is a need to shift from studio based learning to real-world learning, where students will learn from different models of experiential learning and will be more prepared for the realm of clients, communities, government and industry after graduation. This paper discusses elaborately on one such model of teaching–'Design-build studio', which fills the gap between academia and practice.*

1. INTRODUCTION

Presently, in the design studios, students learn only within the classroom. Two main subjects of the curriculum, design and construction are taught separately. Students work on design problem individually and design is represented on sheets and its modeling is done on computers. When they graduate and enter the field of architecture, it becomes difficult for them to relate the design and construction of a building and take them years to settle down into the field. As the professional and formal education of architect starts with the schools of architecture, so there is a need to combine the components of profession and education in architecture. Architectural design is the core subject, where the knowledge of all other subjects play important role. Many design studio models have been developed over the years to recombine the skills needed in the profession and education. One among these models is design-build Studio, where the students learn by building a project.

2. DEFINITION OF 'DESIGN-BUILD STUDIO'

Definition 1 – A university course in which students build selected designs, typically for a community. Collaboration, conflict resolution, finance management and communication with clients are common and necessary elements of these courses. (Emerged in North America in the 1970's and are presently active) [1]

Definition 2 – Academic design/build projects are generally defined as projects in which students develop and construct a building or other full-scale environment. The main intention of this type of learning initiative is to give students a real-world, hands-on application of lessons learned within the classroom setting. [3]

3. OBJECTIVES OF DESIGN-BUILD STUDIO

Projects build in design build studio is a collaborative work of students. It is a consensus design experience for them. Learning- by- doing is the main motto of this studio, where students design for the real clients and have the real-world experience. While dealing with the real clients, development in communication and graphic skills has been observed in the students. Mostly issues related to under-developed communities are addressed in design-build studios which develops values towards community services in the students. [2]

4. BENEFITS OF DESIGN-BUILD STUDIOS

Design- build studio can be used as a tool for community development. While working with the communities students may develop the ability to employ a variety of design/build methodologies and theoretical approaches.

Students may participate in team collaborative design/build activity and may develop graphic, written and oral communication techniques.

Students get benefitted as they may apply what they have learnt in the classroom and will learn the concept of social

responsibility during their studies and will take it further after graduation. [2]

5. CHARACTERISTICS OF DESIGN-BUILD STUDIO

This Studio combines technology with art, techniques with aesthetics, and sciences with humanities, therefore students get both real-world and hands-on experience while working on real project. They will have enhanced decision-based thinking. Students are more prepared to deal with the issues in practice and learn to cope with crises non-sequentially. [1]

6. CASE STUDIES

1. Auburn University, USA – The Rural Studio

The studio was founded in 1993 by architects Samuel Mockbee and D.K. Ruth. It is an off- campus design- build studio for undergraduates at Auburn university. The emphasis of the studio is on the descent and affordable housing for the underserved population of Hale, Perry and Marengo counties in Alabama. The duration of the studio is one semester for 12-16 numbers third year students, one year for maximum four numbers outreach students and eighteen to twenty- four months for around 12 fifth year students. Students have to stay off-campus for the whole duration and their other classes are conducted there with the rural studio.

Rural Studio takes into account local customs, culture, history and perspectives of the community while designing and building for them. Finance for the project are arranged through charity and "502 direct loan" provided by Rural housing Service. Local industries and workshops, craftspeople and volunteers also participate in the studio.[1][2]

2. Ball State University, USA – Sustainable design Studio

This course is for graduate level students. It seeks to build sustainable relationships between people, prosperity and the planet. The studio promotes awareness of issues related to sustainable development. Students and community both participate in the project and use local materials and techniques for sustainable practices.[1]

3. University of Kansas – Studio 804

The studio started in 1995 and presently working as a non-profit organization where 16 to 24 graduate students work on well designed sustainable and affordable housing projects in their fall and spring semester. Finances are arranged through non-profit organizations and community Development Corporation.

4. University of Washington – Neighborhood Design Build Studio

This studio started functioning in the year 1994. A total of sixteen number graduate and undergraduate students from different disciplines work on community development and social equity projects for eleven weeks of spring semester. Seattle Department of neighborhood provides finance for the projects. [1]

5. Himgiri Zee University, Dehradun,India – Design Studio 2011

This was just a 15 day studio, organized by author and co-author of this paper when they were working at this university as faculty. Students of second and third year architecture did survey of a small Muslim community of 8-10 households near to the university. It was both- way sharing of knowledge. Community people taught students about their local building materials and techniques, and students tried to find out different needs of the community. In the studio students came up with many issues that could be solved through small design- build intervention, like, a play area for children, bathroom for women, a door for each house etc.

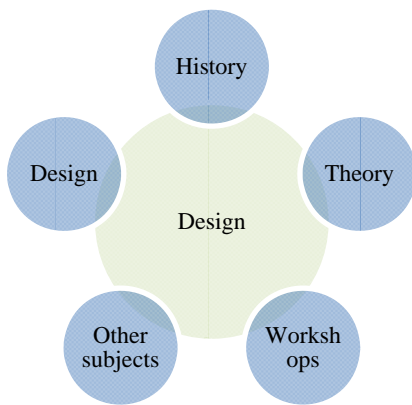| Interaction with community	Photo by Ar. Sandeep Arora

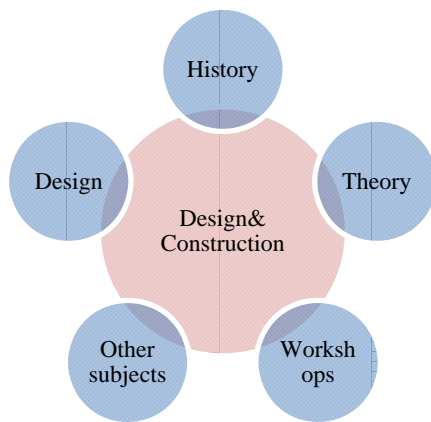**Students at Himgiri Zee University Photo by author**

7.   OBSERVATIONS

When the analysis of literature on evolution of architectural education was done, it was observed that neither in Ecole-des Beaux- arts period, nor in Bauhaus period, this weaving together of design and construction was done. In most of architectural schools in the world we are still following one of these two patterns of training future architects. There should be some relationship between the components of design and construction of buildings in education and practice. In many schools of architecture in other countries, design-build studios are bridging this gap between the segmented process of design and construction. In India too we can think of introducing such model of design instruction in our curriculum.

Architectural Schools having classroom based design studios

Architecture schools having design-build studios

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