

A Design-Build Experience: Kilyos Boathouse

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KEYWORDS

design education, design-build studio, hidden curriculum, learning by doing, horizontal learning

As a part of the stated curriculum of MEF University Faculty of Arts, Design and Architecture, Design and Build! Studio (DBS) is a compulsory summer programme for students completing their first year in architecture and interior design. Within the framework of Design and Build! Studio, the school communicates its set of values through emphasizing learning by doing, horizontal learning and underlining the process. This paper discusses how a design-build studio can be a distinctive hidden quality of an architecture faculty through the case of Kilyos Boathouse project conducted in Summer 2018.



BACKGROUND

Design studio is established as a norm in design education to the extent that it now imposes nature of instructor-student regardless of the content of the education. Even though it amplifies well accepted learning theories such as learning by doing (Dewey, 1938) and reflection in action (Schön, 1985); design studio legitimates hierarchical social relations (Dutton, 1987) and falls behind in engaging real-life situations. Design-Build studio (DBS), on the other hand, is distinctive from a typical design studio in its engagement of real clients in real-time settings (Sara, 2004; Hinson, 2007; Anderson and Priest, 2012) and is regarded as an asset to address the missing content in architecture education (Morrow, 2014; Harriss, 2015). For this reason, design-build studio is considered as a pedagogical alternative (Canizaro, 2012) for extending the institutional confines of the design studio (Anderson & Priest, 2012).

In architecture schools, educators act consciously to structure knowledge and practices in hidden ways while recognizing the stated curriculum. Learning by doing, horizontal learning and underlining the process over the final product could be a few examples for these hidden ways. Dutton (1987) describes this as ‘hidden curriculum’ referring to unstated values, attitudes, and norms which stem tacitly from the social relations of the school and classroom as well as the content of the course. Design-Build studio also has the potential to connect this diversity of unstated values, attitudes, and norms that are unevenly scattered along the undergraduate study.

While design-build studio is a widely used pedagogic means, these distinctive hidden qualities are not discussed thoroughly in literature. Motivated by this, we aim to develop a better understanding of the topic through a design-build studio case and specifically address the following question: *How a design-build studio can be a distinctive hidden quality of/in an architecture faculty?* While addressing this question, the paper investigates the ways through which design-build studio becomes a pedagogical alternative and structures different components of design education. The focus will be on the perspective of the students and tutors, to reveal how DBS empowers them to restructure conventional ‘hidden curriculum’.

To explore these questions, a design-build studio setting was observed by the authors as a ‘living laboratory’ for five weeks in Summer 2018. Following an overview of how design-build studios at MEF University Faculty of Arts, Design and Architecture are operated as a pedagogical practice, the second section introduces a design-build studio case to show how it addresses the missing content in design education. The third section discusses

the hidden qualities of a design-build studio and the soft skills that students acquire in a DBS. Semi-structured interviews that are conducted with four students involved in the project will be one of the bases for the critical overview of the ability of the design-build studio to be a pedagogical alternative. In these last two and conclusive sections, the paper scrutinizes the further possibilities of the design-build studio to be a core tool to structure different components of design education.

DESIGN-BUILD STUDIO AS A PEDAGOGICAL PRACTICE AT MEF FADA

At MEF FADA¹, design studio is prioritized with an intensive course load of 12 hours a week and is regarded as the core of education where students are encouraged to learn by doing and experimenting. In parallel with this, Design-Build Studio (DBS) is one of the primary pedagogic means that communicates the central values of the school as early as the first year of undergraduate studies. DBS extends this environment beyond the boundaries of the school and provides a new setting where students exchange knowledge and knowhow, develop skills and form an alternative vision of the professional practice. Within the DBS programme, students are introduced to the construction site for exploring materiality and tectonics through hands-on experience. Moreover, they raise awareness of place, climate and local culture while they are dealing with the challenges of an architectural project.

The programme is scheduled at the end of the first-year studies as a summer school for valid reasons. DBS projects are not integrated into regular design studios even though most of the faculty members take part in the organization. This makes it impossible to be run simultaneously with the stated curriculum. In addition to this, a majority of the projects require working outdoors and good weather conditions. However, the necessity of working during summer term limits the design and construction process which then eventually limits the scale and complexity of projects. The limited scale and complexity of projects fit the first-year students' level of knowledge and prepares them for the second year education.

A committee of faculty members serves as the liaison with clients to secure the design-build projects before the summer program begins. The lack of experience of the first-year students for setting up a project themselves is making faculty

1 MEF University Faculty of Arts, Design and Architecture <http://fada.mef.edu.tr/en>

members responsible for this. Moreover, a comprehensive consideration of various design build projects is necessary to match the scope and scale of projects with the number of the students and the available construction equipment and hand tools of the faculty.

Due to the uniqueness of each project and the relationships between MEF and its partners, it is hard to come up with an encompassing scheme of partners. Nevertheless, tutors and students get involved with clients and partners from diverse backgrounds through several meetings before, during and at the end of the project. In parallel with these, students are responsible for having preliminary research about their project theme and being ready with their tools and work suits on the first day. From that point on, tutors, students and clients/using community work together for developing the brief, budget and design which then followed by on-site construction by the students with the feedback from the tutors and the client.

DBS projects pursue public interest and are usually carried out with clients such as public authorities, public schools and NGOs. Projects usually last three weeks that cover a week for developing the brief and design, and two weeks for the construction. In each project, roughly fifteen students and two tutors take part for building usually a small scale timber structure in various spatial contexts such as playgrounds, bridges, classroom interiors, pavilions and shades. Projects take place either in small towns and villages in Anatolia or Istanbul. There are also some projects conducted with international collaborations in Yerevan and Gazimagusa.

Collaborators sponsor the projects in several ways. First of all, MEF FADA provides woodworking tools, equipment and logistics alongside the design service and construction labour by the students; second, clients provide material supply, accommodation and food where necessary; and third, industry partners offer services for complex construction processes such as piling or deep foundation.

The programme starts with a briefing about the health and safety risks of a construction site. At the beginning of each project, all students join a training session for operating woodworking equipment and tools. High-risk woodworking tools such as table saw and circular saw have limited access for the first-year students, which are either operated by the tutors or experienced student assistants. On the other hand, first-year students develop hard skills to use machines such as jigsaws, drills, electric screwdrivers, and basic construction tools such as spanners, screwdrivers and handsaws after their training session.

Unlike a typical design studio, there is no individual performance assessment at the end of a DBS. Students fail only if

they do not attend to the programme or have a disciplinary situation. Instead of individual assessments, a public celebration becomes the climax of the successful completion of the project.

The following section introduces the Boathouse Project as a case to discuss how design-build studio structures different components of design education. Following diverse design build projects — namely playground, bridge, hub for hiking trail, viewing deck — Boathouse was a project by FADA that is closest to the definition and scope of a building in the conventional sense. Accordingly, it required a larger workforce and a longer construction period with a higher number of work-items. Unlike a typical DBS, the project is conducted in two shifts (35 students in total) in an extended period of 5 weeks.

A DESIGN-BUILD STUDIO CASE: KILYOS BOATHOUSE

The Boathouse project is designed and built at Kilyos Beach in Istanbul for Bogazici University Marine and Sailing Club² to store their equipment such as small sailing catamarans and windsurf boards while providing a space for club members to gather. The Boathouse project is part of the 2018 Design and Build! program and completed between 18 June–21 July 2018. Thirty-five first-year students, four experienced student assistants and three tutors designed and built the project for five weeks with the support by Bogazici University for materials and accommodation, ZETAS³ for groundworks, and TORID⁴ for timber supply. In addition to this, Bogazici University Marine and Sailing Club members provided voluntary support for logistics. The Boathouse is awarded both for the Turkish Architecture Yearbook 2018⁵ and Project Awards for Architectural Students⁶ in Turkey.

2 Bogazici University Marine and Sailing Club,
<http://www.sailing.boun.edu.tr/>

3 ZETAS (ZETAS Foundation Technology Inc.)
<http://www.zetas.com.tr/index.php?dil=EN&id=0>

4 TORID (Turkish Association of Forest Products Industrialists and Businessmen) <https://www.torid.org.tr/>

5 Turkish Architecture Yearbook is an annual selection of professional architectural projects distributed by Arkitera Architecture Center <http://www.arkitera.com/haber/turkiye-mimarlik-yilli-gi-2018-icin-secilen-projeler-belli-oldu/> <http://www.arkitera.com/proje/kayikhane/>

6 ArchED Association for Architectural Education,
<https://www.mimed.org.tr/>



Fig. 2: a team of students discussing the design of the facade with the tutor



Fig. 1: meeting to discuss and organize the design process



Fig. 3: students presenting their design in a formal meeting



Figs. 4-6: view of the construction site from north, east and south





The project site is located in a small valley hosting endemic sea daffodils at Bogazici University Kilyos Campus in the northern coast of Istanbul which is widely known for its northeaster wind and serious rip current. While the site characteristics allow training activities for sailing, it also poses a danger for inexperienced swimmers. Nevertheless, the area is a popular weekend attraction for Istanbulites. This unfamiliar working environment contrasting with its features provided a new experience to students for growing away from the formal setting of the design studio and confronting with a real client in a real-time setting. Students also remarked that this confrontation helped them to realize the limitations of a real construction site that they have not considered before.

The Rectorate of Bogazici University provided accommodation for the students and tutors, and storage for construction materials and equipment. This allowed students to save time for accessing the site and to develop better communication with others. Students and tutors stayed in shared dormitory rooms and followed the regular eating hours for breakfast, lunch and dinner which eventually regulated the working shifts. The morning shift was starting at 08:30 until 12:30, afternoon shift was from 13:30 until 17:00, and the final shift was starting after dinner at 18:00 till sunset around 20:00. These shifts were overlapping with the necessities of the limited timeframe and allowing an intensive design and building process. Students underlined the significance of this intensive working process for helping them to leap forward in their learning experience.

Working spaces were allocated for material and equipment storage, model-making, drawing, presentations and meetings aside from the construction site. During the construction phase, these spaces transformed into a studio for design development and a woodshop for manufacturing building elements since the beach conditions were not suitable for woodworking. Due to the publicly accessible location of the construction site, equipment and materials were installed and collected every working day for security reasons. Furthermore, voluntary club members joined the students every morning for setting up a shade tarp over the construction site by using their sailing skills. These arrangements helped students for adapting a working discipline and taking responsibility at the worksite as well as collaborating with the client for performing the worksite routines.

The project is funded by MEF University for the logistics, tools and equipment, and Bogazici University for the accommodation, materials and supply. Building materials for the timber structure are donated by TORID. During the design phase, Bogazici University Civil Engineering Department provided static project consultancy. None of the building phases

was subcontracted to professional teams except the piling phase in the first week. ZETAS Foundation Technology offered a free service for this complex construction process. Working together with operators, donors, collaborators and contributors helped students to understand the complex phases of an architectural project besides designing and building.

Location, scheduling, working arrangements, financing and partners of the Boathouse project are elaborated above to identify the general setting. In brief, this setting provided a confrontation with a real client in an unfamiliar location and required working in collaboration with various partners within intensive work conditions. This setting accommodated both challenges and opportunities during the design and building processes.

DESIGN PROCESS: CHALLENGES AND OPPORTUNITIES

As revealed in the preceding sections, the complexity of the process and setting of the design build studio is a fertile ground to create a pedagogical alternative to the conventional practice of design studio. Architecture education usually stays away from reality's normative pragmatism, while architectural practice was constrained by necessities of regulation, organisation and control. It creates an enduring gap between education and practice (Dodd, 2015). As this paper and the research on design-build studios demonstrate, they bridge this gap by addressing the missing content and constraints in architecture education (Morrow, 2014; Harriss, 2015). Moreover, as the Boathouse project demonstrated, design-build studio is invaluable environment to convert these real-life settings into a controlled and cooperative design process that can assess the successes and failures of design education in real life. Regarding the validity of the education, the feedback from professional practice is hard to get. DBS is a unique and manageable opportunity for the tutors to observe real-life consequences of their educational choices. Boathouse project provides a reflection on introducing the soft skills to real-life design process and ensuring strong engagement of the students.

The brief of the Boathouse requested space for the equipment and modest social activities of the Sailing Club. The vagueness of the brief constituted a challenge and opportunity. Club members presented their needs and introduced their equipment as a design brief to the extent that it predefined the volume and specified the climatic conditions needed to store the equipment but fell short of defining the social use of the space. Thus, negotiating the requirements of oversize equipment, limits of available construction materials, and vagueness of the social functions of the boathouse was the

initial and main challenge. At this stage, the participatory design was instrumental to adopt soft skills in a sophisticated design process. Participatory design was an intensive process lasted for one week at the beginning of the DBS programme. Both of the student teams (35 first-year students in total) were present alongside the student assistants, tutors and the voluntary club members. Students were divided into four teams led by the student assistants and prepared their design proposals to present. In the presentation session, everyone has had a say. Proposals were then discussed with the club members and voted for a decision. One of the proposals was selected to develop further with the participation of all teams.

Based on students' comments on interview questions, working together with others and closely with the tutors boosted their self-confidence in conveying their opinions to a wider audience. Students are conscious of the benefits provided by this experience for their professional careers and the project. Students remarked that they were eager to develop it further together by feeling a greater responsibility to something beyond themselves. Resulting from the participatory process, all participants embraced the design decision. They took the project seriously and were more motivated to complete the work compared to their regular individual studio projects.

The dynamic form of the boathouse demonstrates the fruitful outcome of the design process that negotiated practical constraints and design concerns. The design consisted of two masses that are in harmony with the natural topography and local climate. Two attached masses pointing the coast, are designed for storing larger equipment like mini catamarans, pole; and smaller equipment like windsurfing boards, kiteboards in each one. The dimensions of the masses are determined by maximization of their storage capacity. Accordingly, the interior is designed for the changing needs of the club to provide a flexible capacity of interior space. Practical solutions such as detachable steel bars that store the mini catamarans allow the larger body of the structure to become a single volume. While managing these constraints and concerns within the masses, design of their exact form and relationship created room to debate architectural concepts of balance, rhythm, and composition as in design studios. With a dynamic gesture masses of the design gravitate to opposite directions and recalls the enthusiastic and active nature of the newly established club at the university. As the large mass stretches towards the sea, it defines the deck and open spaces for social activities. Similarly, the façades of the masses are designed with a limited range of materials: plywood, transparent and metal deck sheets. Differences in materials

and textures separate the two masses of the overall design from each other. The permeable façades of the design let the strong prevailing winds pass through, lets the sunshine in, and provide comfort conditions in the interior.

In an extraordinary way, the collaborative design of the boathouse was shaped by the debates of a large group of 35 students. The debates were the venue to talk to peers and clients about all aspects of design. These were unique occasions that empower students to articulate their ideas in the complexity of a real-life scenario but out of the mainstream narrative. That is invaluable in an architectural world dominated by star architects. As our interviews reveal, the ability to accomplish for public good becomes a milestone for the students towards becoming socially responsible designers qualified with the necessary soft skills.

CRITICAL REFLECTIONS

Interviews revealed that there are distinctive thresholds in architecture education which can be observed through the (soft) skills students acquire. Based on the responses of students, these thresholds are categorized within the study years. For instance, the first-year education is linked with understanding the conception of architectural design ideas and imagination; the second-year is related to engaging in the development of technical and conceptual processes simultaneously, and the third-year is associated with developing a capacity to work with limitations in complex design tasks. In addition to these, students remarked that DBS has a unique position for helping them to build self-confidence in conveying their opinions and taking initiative, to work together as a group, and to adapt intensive working conditions. These reported soft skills are linked to the pedagogical goals of the project, which can be named as learning by doing, horizontal learning and underlining the process.

The first pedagogical goal of the project is learning by doing. Direct engagement enables learning through several processes, and the design-build studio is a relevant setting to enhance them. In this context, students grew away from the formal setting and relocated in an unfamiliar context to confront a real-world subject. They were responsible with developing a fully-fledged design proposal, making presentations to communicate with the client, keeping working setup in order as well as the building site, tracking material supply, and building the design in a limited timeframe. Students used woodworking tools after having health and safety training and they undertake the shared work items as workgroups each day.



Figs. 7-8: students building

Fig. 9: interior view



Figs. 7-8: students building

Fig. 9: interior view







Figs. 9-12: exterior and interior views of the building

The second goal of the project is horizontal learning. Instead of delivering top-down instructions, educators' position was ruling out the hierarchy by working, living and making decisions together. In this sense, the working setting was an extension of the studio culture, including sex equality among work sharing, team set-up, and dedication to the project. Moreover, each student was responsible for their work items as well as they were responsible for the whole group. Student assistants were exchanging their experience and knowledge with the first-years while they were sharing the responsibility. They were learning from each other.

The third goal is to underline the process over results of the project. Within a limited timeframe and limited experience, the process is always emphasized considerably more than the final product. In this context, openness was one of the crucial characteristics that led to a direct dialogue with the client through a series of meetings with the Sailing Club members for developing the design together. During the building phase lasting four weeks, several adaptations were made as responses to challenges and opportunities.

Besides these pedagogical aspects, students noted that they spent their after-work hours for exchanging their past experiences and future expectations with their peers. These conversations, as they stated, created a sense of belonging to the school community and the field of architecture as early as their first year. This sense of belonging is also enhanced by extracurricular accomplishments such as working as interns in recognized architectural offices. They consider their design-build studio project as an asset within their portfolio for initiating these internships. This kind of professional validation can also be a signifier for the success of an architecture faculty and a motivation for the students and graduates.

It is important to admit the limitations encountered during the Boathouse project even though a coherent and comprehensive outcome was aimed for the study. Firstly, designing and building tasks in detail level were too complex for the first-year architecture students. From time to time, their limited skills and knowledge was a barrier for understanding the project holistically. Secondly, climatic conditions were challenging such that there were day-long breaks. Thirdly, late arrival of the fundamental building materials caused delays for initiating the construction. This situation restricted students' engagement during the building phase within the first group.

To conclude, the design-build studio is one of the central characteristics of the school. As a common experience, all the students get involved in this organization as early as the first year; and they become a part of the faculty culture. Participa-

tion of all of the faculty members in design-build studios also provides an introduction for a mutual acquaintance among students and tutors. Moreover, projects include a social aspect either for community service or for community involvement enhancing the purposefulness which then empower the connection with the real-life situations. Overall, the design-build studio setting is a unique hidden quality for architectural education besides its well-known curricular qualities.

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Studio: Design-Build! Studio 2018 at MEF University Faculty of Arts, Design and Architecture

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Client: The Rectorate of Bogazici University, Bogazici University Marine and Sailing Club

Donors: MEF University, Bogazici University, TORID, ZETAS

Awards: Turkish Architecture Yearbook 2018, ArchED Project Awards for Architectural Students in Turkey.

Project Duration: 5 weeks (18 June–21 July 2018)

Studio Schedule: Monday to Friday 08:30–20:00

