Transitioning to Design-Build | Initial Successes and Challenges

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DEVELOPING A DESIGN-BUILD PEDAGOGY

The University at Buffalo School of Architecture and Planning (B/a+p) has a history of built work, especially through its small built works studio offering, (Buffalo) most of which have been helped along by its continually adapting workshop facility. The workshop has a strong tradition of being an additional space for learning about construction materials and methods, it's on campus name, the Materials and Methods shop suggests this mission. The space has evolved through the years to compliment the pedagogy of the school, shifting from a space primarily for making models to one primarily for assembling digitally produced model parts.

In 2011 the School of Architecture and Planning had a change in leadership, with a new dean and new department chairs (BAP website); following this, in 2013 the workshop had a change in leadership for this first time in its history. These appointments have provided an opportunity to reconsider the role of making in our pedagogy as well as the role that our facilities must play in this pedagogy. This change highlighted a desire to embed more Design-Build educational opportunities into the School of Architecture and Planning's DNA. The initiation of a Solar Decathlon entry and other full scale building projects allowed several pragmatic issues to arise almost immediately. These issues ranged from a codified health and safety approach, to the shrinking, but still present need to make and assemble models competing for space.

The new senior leadership of the school had the foresight to reconfigure the workshop and to co-locate the growing fab/lab in the same space simultaneously with the new shop leadership appointment. This also allowed for the fab/lab director to be more involved in shop decisions, which brought a sense of continuity to the changes. Specifically the new combined workshop is home to a diverse range of analogue and digital tooling which support both the model scale and the Design-Build scale. The combined workshop is a place to address, from within, some of the other pragmatic details. Together the combined shop leadership has worked to embed clarity in our health and safety protocols, have configured teaching space

in the workshop, as well as delineated large project construction space. Further to this we have begun to address the issue of building permissions through a nascent relationship with the University Facilities Planning and Design group.

The relationships with the related university departments (facilities - life safety – etc.), and B/a+p senior management are less exciting to discuss than the Design-Build projects themselves, however, it is the cultivation of these relationships that is integral to the Design-Build process. It is important to avoid placing quantitative valuation on any of these relationships, the support of B/a+p senior management is absolutely fundamental to any Design-Build project or process that is to have any longevity of success at all.

B/a+p senior management set up a Design-Build seminar, taught by the co-directors of the workshop space in the workshop. The formal melding of workshop and pedagogy is relevant in that it begins to eliminate the need to inject a workshop process into the seminar, they are one singular process. Bringing the directors of a workshop into a teaching environment is a change at the B/a+p that potentially can address the desire to fertilize the role of making in our pedagogy. This paper is a discussion of this seminar's first semester, the lessons learned, and an attempt to situate the seminar in the wider debate about Design-Build Education, Live Projects, and the critique of the status quo of architecture education.

THE DESIGN-BUILD SEMINAR

The Design-Build Seminar (DBS) is an attempt to harness the creative talents of our students to improve the community. In the case of the initial DBS the community is the B/a+p itself. The structure embedded in the DBS allows for the partnering with internal as well as external organizations. Our partnering organizations will provide projects that offer both a unique and wholesale learning experience for our students as well as access to design and build services. The goal is to have our partners acting as a "client". The client gets a completed project (at a greatly reduced cost) the students get a holistic project-based learning experience that attempts to closely resemble a professional experience.

The initial seminar with guidance from senior management at B/a+p set up a list of projects that would allow the School to act as the client in every case. There were 6 projects in all, three larger projects and three small initial projects. The rationale was that through a small short project in the beginning of the semester we as teachers can better gauge the skill set of the students, as well as assess the group dynamic to ensure successful completion of the larger projects. In reality these small projects were not small enough.

The projects selected by the B/a+p are:

> 1)   Window Shades – The design and construction of lightproof window shades to match the aesthetic quality of a lecture space. Requirements include a "barn door" construction, additional pinup space, and life safety.

> 2)   Studio Desks –This is a client-based project. As a group, students needed to meet with the studio faculty to discuss what they are looking for. These particular desks needed to be designed with situated technologies in mind. Things to consider: work space, storage, small pieces, security, materials, details, time constraints and an overall budget.

> 3)   Display Boards – This is a skill building project. As a group,

students have access to a set of drawings that were completed for the display boards for the 1st floor of Crosby Hall. Use this drawing set as your design. Things to consider: Details, accuracy, materials, and each board should be at 100% repeatability, time constraints and an overall budget.

The final 3 projects were part of a client based work environment designed to help the students take ownership over the outcome, of the project. During these meetings, we ask that the client help guide the students with recommendations; this will help to establish parameters and program for each project. Staff followed this up with a detailed design brief that is approved by the office of the Dean.

1)   Classroom - Create a fully functioning classroom inside our current shop environment.

Where this space will be located within the shop and how it functions itself as a classroom as well as what role it will play in the existing shop. Things to consider: location, accessibility, noise, dust, lighting, computing, finishes, time constraints and an overall budget.

2)   Room Partitions – Students were asked to design moveable partitions that could increase both pin up space and privacy as one large common studio was divided into two smaller studios.

3)   Critique space – Redesign of a current critic space. Things to consider: Multifunctional, how is the space used, how could the space be used, comfort, quality of time spent there, finishes, who uses the space, time constraints and an overall budget.

Execution of the larger projects was intended to take the form of a design – jury – construction process, explained to the students as follows:

1) Design

The Design phase is intended to offer a live project setting in which students will propose designs for projects selected from our list of partners. The design must include drawings intended for construction, budget forecasts, and a building plan and timeline. (All requirements will be detailed in the syllabus).

2) Jury

The Jury will convene around midterm, and will include the partners-client, the teaching team, representatives from the school of Architecture and Planning, as well as additional internal and external stakeholders. –NOT ALL DESIGNS WILL BE SELECTED FOR CONSTRUCTION—

3) Construction

The construction phase will involve jury selected projects being constructed by all students enrolled in the seminar. (Russell)

The results of the seminar are an excellent source of guidance for the future of the seminar, as well as a reference point for the debate around Design-Build projects in general. It is important to highlight the positive experience reported by our students as a whole relaying this through student survey and instructor evaluation forms. The seminar itself can be viewed with varying levels of success. This spectrum is the reference point for the debate.

Figure 1: Studio Desk Prototype

Figure 2: Studio desk Prototype Detail

EDUCATION VS PROJECT DELIVERY

The small projects all completed by the end of the semester and they were completed to a satisfactory level of construction. However there was some dissatisfaction with the Studio Desks project in particular. The "client" was dissatisfied with the delivery timetable, and questioned the cost to value ratio. Further to this, our

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students became dissatisfied with the project as well, citing the lack of fairness in being expected to build tables for their classmates, and not being allowed to have new tables themselves.

The root of the problem is a mismanagement of expectations on the part of the instructors and the senior management at B/a+p. Further to this, project creep was allowed to overcome the original design brief, with the project growing from one desk to over twenty.

A misplaced assumption that by working in our own Department of Architecture we could avoid a nuanced discussion on the nature of Design-Build education projects and their relationship to a product delivery.

In actuality, our partnering faculty was under the assumption that they were simply getting a custom piece of furniture for the cost of materials. The exploitative nature of this arrangement notwithstanding, there was never a clear acceptance of the risks involved with being a client in a Design-Build project. Avoiding this conversation caused a lack of agreement on the hierarchy that accompanies of Design-Build projects as curriculum where education is, and must be, paramount. Here lies the single greatest lesson for our School of Architecture from the initial DBS. Design-Build projects must be accepted to be learning tools if they are to be part of the pedagogy, otherwise we risk exploiting our students in an attempt to simplify the procurement process.

This dichotomy is a constant struggle for Design-Build education, the ability to attract partners often requires meeting expectations of clients that are not always

Figure 3: Display boards installation

concerned with students learning. Architecture Researchers in the United Kingdom, through their parallel approach to "live projects" (Live Projects Network) have produced a clear understanding of the shifting value of projects and live projects, possibly best described by the bureau de change analogy offered by James Benedict Brown (Brown). In this analogy Brown offers that like a Buearu de Change students work is "valued according to a set of pre determined learning outcomes," with assessment serving as the mechanism that can articulate the quality of knowledge gained by a student as compared to their peers. (Brown)

Engaging with the concept of live projects, as borrowed from the UK, then we accept the "live project" is focused primarily on the relationship between "client" and student architect than anything that has to do with building. Live projects offer a more egalitarian, communal approach to studio than a traditional simulation. Learning goals and outcomes shift, focusing on the soft skills at least as much as design thinking. A more North American Design-Build project relies on the relationship and learning opportunities present when executing a design. The DBS at B/a+p is an attempt to negotiate both a live project and a Design-Build project simultaneously. Though not a novel approach elsewhere, it is unique at B/a+p. Through this lens the work of the seminar was highly successful in delivering a live project and helping our students to develop skills in relationships, in time and project management and in costing. However with the delays to many projects and the abandoning of others the Design-Build lens allows us to claim a much more modest level of success.

PEDAGOGICAL EVOLUTION

By introducing the framework of a live project we have complicated the seminar perhaps more than it needs to be, considering that we are doing projects that are entirely in service of our School. Why should we add additional complexity to an already complex process? Again we turn to the literature regarding live projects and the critique of the studio culture from the UK. Professor Jeremy Till discusses succinctly in Architecture Depends the elaborate simulation that prevents the status quo of architecture education from moving beyond the "exercise". The studio model is predicated on simulating through a preconceived exercise a series of events one is likely to encounter in professional architecture practice. The simulation in fact fails to deliver on almost anything other than culture of criticism that will be encountered in professional practice. The exercise relies on the studio professor's opinion more than anything else. The professor plays the role of the client, the studio leader, the mentor, and if included at all, the project manager and banker.

The DBS which couples the live client aspect of the Live Project, with the materiality and construction of a Design-Build project has the potential to present a more egalitarian co-learning environment. The live client removes the professor from the role of master and places them in the role of mentor. In short, the studio professor does not have all the answers; we are forced to navigate the same confusing fluid project as our students.

LOOKING AHEAD

At the completion of the initial seminar we were fortunate to have a post mortem with senior administration to adapt our approach.

Everything relates to manageability. We accept that Design-Build projects and live projects in their own respects are more cumbersome to manage, and that when putting together both approaches, we need to manage the expectations of clients, and of the expectations of students. Also we have come to accept that projects, at least initially, need to be kept manageable in terms of scope. While this will limit

the number of potential "clients" somewhat, it will ensure better built projects and happier clients in the long term.

Applying lessons learned regarding situating our Design-Build seminar in the larger debate about architecture education and pedagogy we have taken action to bifurcate the initial goals of the seminar. We accept that we have the capacity to produce high quality custom projects. However the needs of these projects and the clients that are attached to them are often contrary to the pace and skill set of a student group in an educational setting. Meanwhile we struggle to align the pedagogy the curriculum the student ability/motivation with the needs of the client.

A Project Office was born. The Project Office is a research center that has the ability to produce these sorts of projects to the required specification as well as producing material and construction research. This is all accomplished through utilizing the excess capacity of the workshop staff, which is compensated for their efforts.

The educational component has been retained in the Design-Build Seminar giving it the ability to focus on education, and skill building opportunities for our students in a non-exploitive manner.

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