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INTRODUCTION

The academy is not paradise. But learning is a place where paradise can be created. The classroom [studio], with all its limitations, remains a location of possibility. In that field of possibility we have the opportunity to labor for freedom", to demand of ourselves and our comrades, an openness of mind and heart that allows us to face . reality even as we collectively imagine ways to move beyond boundaries, to transgress. This is education as the practice of freedom. [1]

Design, as a practice, requires determination, tenacity, and dedication. Critical achievement in design depends on the independence and initiative of the designer. History has proven that the practices of Art, Architecture or Design are no longer the privilege of a few talented, gifted individuals, but are mastered through learning and practice. In this case, perseverance and a desire to learn are the most important qualities to help the design student gain a sense of accomplishment. The desire for achievement and personal success is strongly detected during the introductory classes among first year design students. The eagerness to achieve independence and creativity and the earnest need for recognition are expressed by the students very early in their design education. Quietly, they indicate a desire to go beyond the initial aspiration of becoming simply a professional. Indirectly, students search for forms of self-assurance that will make them confident in their own right. To be at design school is a form of exploration into the world, a form of self-realization, an opportunity to discover one's own identity. This proves that design education must evolve beyond technical expertise. Design education is a political act for both learner and educator. It is a human endeavor for higher aspirations. Design students are looking for forms of social recognition within their education. [2]

What is the role of the design educator if we consider the student as an individual in search of a sense of authenticity, independence and empowerment? Does our work depend simply on transferring an expertise to another human being? In my experience as an educator I have always searched for something beyond the specific lessons of a discipline (or "the project objectives"). As Dewey suggested, effective learning is by doing and by experiencing. This is the wonderful opportunity the studio gives to us: learning happens during the act of designing. The studio situation is in direct contrast to the lecture hall, the traditional educational setting the students usually experience before coming to design school. In the lecture hall the attitude is passive as the students listen to the teacher who prominently controls the nature of how knowledge is disseminated. The studio is a new space where learning is defined by the direct contact between student and teacher. The learning process is more successful through individual engagement. If there is not a deep connection between the learner and the lesson, learning is limited. As a studio educator (instead of "instructor") I have always pursued strategies of engagement as a way of creating a healthy, constructive and exciting atmosphere for learning. I often tell my students that in studio the roles are reversed, as the students assume the position of a project leader and I become a type of consultant/assistant during desk critiques.

Like many design students a question has pursued me since the days I was in Architecture School. If design defines spaces to be experienced tangibly, why do we go through design school without ever having the opportunity to conceive and build the total experience of real spaces, in full-scale and present-time? How can we narrow the bridges between theory and practice? Challenging the traditional notion that design-build experiences are for advanced students, recently I have been using design-build techniques to address issues at the beginning of design education. The intention is to create an opportunity for first year design students to advance their learning through design investigations that culminate in a built, full-scale spatial experience. This is an invaluable moment to assess the distinctions between representation and the physical, phenomenological existence. Design-build exercises build confidence, self-assurance, and creative development at the start of the student's education. Learning in this setting inevitably happens by acting upon the problem through critical thinking, representation, and making.

THE PROJECT

During the past three years I have introduced first year design students with exercises related to full-scale. The project, the last studio exercise of their first year of design education, is a small design intervention that explores design and synthesis of a given set of mediating elements including light, passage and boundary. The investigation addresses interior and exterior relationships through a construction within an existing context. The learning goals for the project include a general understanding of the design process through human factors, environment and culture as influences on form and space making. The student experiment with many design issues using different scales, visual and spatial design vocabulary, critical

methods of investigation, and develop communication skills related to the design process. Craftsmanship is also a primary design concern considered throughout the project.

The project invites the student to design and build a full-scale structure in the space of seven weeks, thus providing the opportunity to directly experiment space in conceptual, sensorial and holistic ways. The engagement is instantaneous. The prospect to build something in full-scale is traditionally reserved for mature students and professionals, and the sense of surprise and possibility for first year students to realize they can make something similar creates a great enthusiasm for learning. There is a natural sense of responsibility and achievement that supports the whole learning process. The general conceptual framework is kept open, allowing the students to respond to the problems presented at all levels and at all times. Along with the students, I do not know what will be built, which makes my work also uncertain. I believe it is important as an educator to take risks with the students. The process becomes a continuing learning experience for everybody, and the situation creates an opportunity to experiment and test other learning tactics, perhaps not yet considered. This position suggests that teaching is also a form of ongoing research. As the design student searches for design solutions the educator is also searching for new ways to help the students find their own paths through the design process.

Stage One: Site+Program

Neither the students nor I have a previous knowledge of what is going to be designed and built. This is an alteration on the traditional way design is produced (the lead designer as the creator, and the assistants as the producers; the educator as instructor/ the students reacting through tasks). I therefore define my position as an instigator, motivator and facilitator, and the student assumes the role of an independent designer, an autonomous thinker. The first stage in the process is to introduce context, scale, materiality, and representation. After a walk around the campus some sites appear more enticing to the studio group (15 or 16 students). The criteria to choose the site are based on simple principles including accessibility, contextual integration, facility of construction, etc. The process of negotiation between students, and between the student and the educator, is a permanent feature of this project. Ultimately, the group decides on one site after discussion and analysis. At this point the group is divided into four smaller groups of four students. Each group builds an elemental wooden frame using 2x4s. The size of the frame is 4' x 4' x 8'. Each frame is then placed on the site and a series of decisions, observations, and analytical sketches are made regarding the newfound conditions. The discoveries are essentially phenomenological: the frame outdoors is not as big as it seems indoors, 8 feet is taller than the students initially assumed, and proportion relations are different inside/outside. There are comparisons made between the frame and the surrounding landscape, the frame and the body, and so on. The program is slowly defined based on the students' observations and experiential needs through elemental body situations such as view-ing, passing, pausing, crawling, sitting, reaching, connecting, etc.

Stage Two: Design Process

The elemental 4' x 4' x 8' wooden frame built in Stage One serves as a basis for each student to initiate the design process. Once the site has been chosen and site analysis has been completed, the students return to studio to develop design ideas using drawings and scale models (1:20) based on site conditions and programmatic requirements. Issues concerning neighboring conditions, sequencing, construction, materiality, and detailing are investigated. A textual narrative is introduced to animate the program, addressing issues of use and inhabitation. I have used short selections of the work of Alain Robbe-Grillet, Jorge Luis Borges, and Paul Auster, but on occasion I ask the students to produce their own narratives. To test their design ideas at full-scale, one last exercise is realized before beginning construction. Students are asked to make experiential slide images of their 1:20 model, demonstrating ways in which their space is to be inhabited. The images are then projected back onto the 4' x 4' x 8' frame which now is covered with a material serving as a projection screen. As the images are projected the students can observe their designs in quasi full-scale presence, observing the space of the frame from outside and by entering into the frame. After this experience they can then make last minute changes or adjustments to their designs before starting construction.

Critical scrutiny is intensified when they know the project will be built. This opportunity gives them a great enthusiasm, which serves as an engine for the learning process. Although the students are expected to develop individual projects, they are also expected to resolve the articulation of a 'total structure' as a group. They are invited to address all the program issues related to design, from size and proportion to structure and form. Context is introduced not simply as a site situation related to orientation, surrounding buildings and landscape adjacencies, but also as the relationship between the students themselves, and the students and other people/users, including passers-by. As the process unfolds it becomes apparent that they have to respond more to each other's structures than to their own design intentions. They will form one single architectural entity at the end: each cell will become part of the whole body. It is an intense process of decision-making about what this small architecture will become. There are no preconceived notions about the occupation of the work on the site, and debate takes place to define a more complex and interesting site intervention. If the students encounter difficulties in making a collective decision I facilitate by suggesting that simple ideas or elemental forms are complex enough to create the new space, allowing them to contribute subjective ideas to the group.

Above all, it is the issue of neighboring conditions that creates the richest and most intriguing discoveries. They have to negotiate and dialogue with each other throughout the entire project in order to develop their own design intentions. Neighboring conditions are a double-sided possibility for learning, both from the design point of view and from the
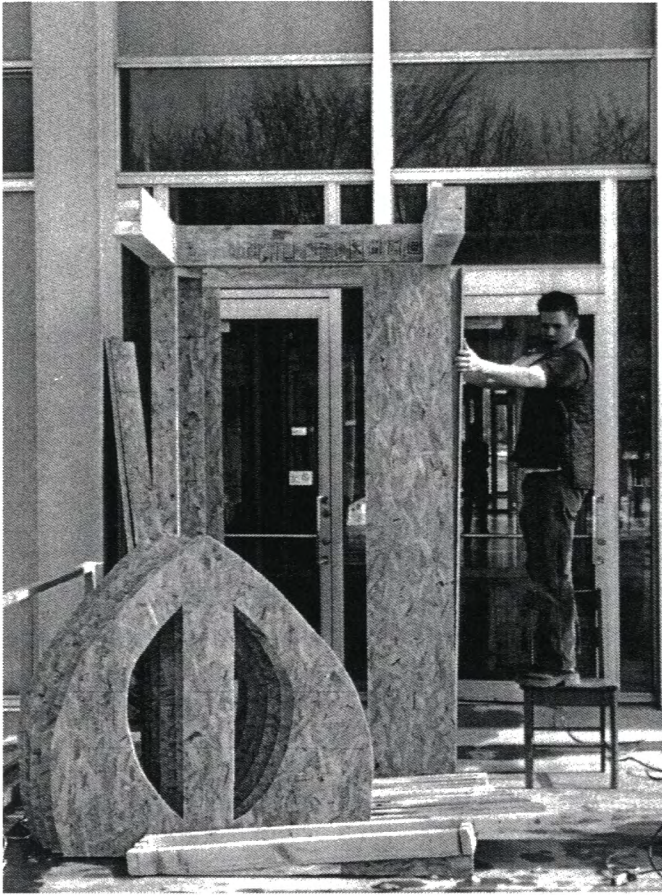
Fig. 1. The 4' x 4' x 8' frame in transformation.

human aspects regarding issues of collaboration, compromise, and adaptability, leading to the construction of the final structure. The project becomes a micro model of a real practice. The design process does not exist in isolation, but instead responds to external conditions usually neglected by constrained studio exercises.

Stage Three: Construction

The final stage directs the students through an intense process of negotiation and collaboration resulting in the construction of the final structure/architecture. The scale of the project compels them to help each other by carrying materials, sharing tools, holding a piece of wood while someone else performs a cut, teaching each other techniques they have learned, etc. The circumstances of the project require them to consider every single gesture, every single move while they are working on the construction. Learning is further reinforced through construction techniques, structural resolution, materiality, joinery, etc. The experience is extremely rich and challenging for both the students and myself as we immerse ourselves in the construction phase mainly by doing and dialogue, two actions that require full engagement. As they work at finding solutions to their design problems my involvement becomes more of a collaborator rather than a traditional instructor. The breadth of the project permits the investigation of many issues in the design process, from concept to execution. However, the main learning outcome is a deeper

sense of confidence and a greater ability to collaborate and negotiate.

LEARNING HOW TO LEARN

All the time my ideal of teaching has been to argue with people on behalf of the idea that they are responsible for their own activities, that they are really, in a sense, the question, that ultimately they are what it is they have to contribute. The most critical part of that is for them to begin developing the ability to assign their own tasks and make their own criticism in relation to their own needs and not in light of some abstract criteria. Because once you learn how to make your own assignments instead of relying on someone else, then you really learn the only thing you really need to get out of school, that is you've learn how to learn. You've become your own teacher. After that you can stay on – for the facilities, the context, the dialogue, the colleagueship, the structure, and so forth. But you'll be already on your own.[3] .

Considering Robert Irwin's statement, one may argue that allowing students 'to be on their own' during the first year of their design education might be too early in their learning process. My observations tell me that if an independent attitude is not encouraged from the very beginning, the student will neither learn to assume responsibility for their own education, nor learn to take ownership of the design process. The possibility for students to create their own assignments and find their own answers should be encouraged in the teaching of all creative disciplines. As mature designers we possess these skills, but as educators we might find them to be the most difficult to convey. One can argue that it is impossible to teach someone how to be creative. However, we, as educators, can foster a studio space where creativity and problem solving are promoted. Who is responsible for the student's education? The teacher or the student? Ultimately, success is not the completion of one assignment but instead it is the positioning of the student in society as an active and participating citizen. Thus, design education should not be looked upon as simply the processing of critical information and technical skills, but also as a liberating practice.

Offering first year students the opportunity to design and build a full-scale structure at such an early stage in their edu-

Fig. 2. The individual 4' x 4' x 8' cells being assembled as part of the entire structure.

cation gives them the necessary responsibility and confidence to respond to the challenges of their future education and practice. The pedagogical strategies used in this project have enabled a wider range of learning possibilities than any other studio project which I have been involved. A friend of mine, a design educator as well, once told me: one learns by doing, and not so much by being told. Design as a liberating practice recognizes the student's experience as a direct component of their learning process. Learning how to learn remains one of my main pedagogical goals. This requires the educator to have a great sense of respect for and trust in the students, which in response makes them responsible and critical of their own decisions. In this case dialogue is one of the most important tools in the learning process. Even though this particular project exposes them to all items of curricula – such as creativity, critical thinking, conceptualization, representation, craftsmanship, etc. – a sense of self-reliance, collaboration, and accomplishment assume an invaluable place in their learning process.

It is possible to transform the studio into a space where freedom of exploration is promoted. One way this can be achieved is through the language and open structure of the studio brief (or project description, outline, etc.) Respect to individual choices and creativity should not be translated into what I want from my students. The more important mantra is what the student wants out of the project. In this sense the brief takes on an important role in this learning strategy. When a brief is too long, convoluted, and hermetic in language, or uses too much jargon – archispeak – there is a tendency for the student to loose interest and focus in the project. The brief should be a tool that creates a free mental space where students can develop their own thoughts, problems and solutions for their design questions. An over-developed brief means intellectual conflagration, a mental storm, helping to create a sense of loss and disconnection. The same can happen in input sessions where excessive lecturing can have a negative impact on the studio. The great advantage of the studio is that we have one to one contact with students. This space is sacred and should be respected above all. Dialogue should come first, and we cannot expect that dialogue can occur in a lecture hall with one hundred students. Too much thinking stops action, says one of Jennifer Holzer's truisms. I

often mention this to my students and they agree instantly with the idea. It is the educator's responsibility to create the proper space where fresh, creative and critical thinking can take place transforming the studio, as bell hooks says, in a location of possibility.

DESIGN AS A LIBERATING PRACTICE

Teaching is a performative act. And it is that aspect of our work that offers the space for change, invention, spontaneous shifts, that can serve as a catalyst drawing out the unique elements in each classroom [studio]. To embrace the performative aspect of teaching we are compelled to engage "audiences," to consider issues of reciprocity. Teachers are not performers in the traditional sense of the word in that our work is not meant to be a spectacle. Yet it is meant to serve as a catalyst that calls everyone to become more and more engaged, to become active participants in learning.[4]

The educator Paulo Freire claimed that education can be a liberating practice that encourages learners to challenge and change the world, and not merely uncritically adapt themselves to it.5) Change starts with the students' recognition that their position in the world is not that of an object but as subjects, provokers, the agents of change. To become critical the learner needs to achieve a state of awareness that is not based on banking or accumulating knowledge, but instead on reflection and self-reflection which will lead to truly new ideas, moving away from mythologies and preconceptions. This is what Freire calls critical consciousness or the process of conscientization. It is in the deep exploration of problems, in the constant revision of ideas, in the active search for a destination that one achieves a state of conscientization. Dialogue, instead of confrontation or polemics, is what builds critical consciousness. It is in the collective praxis that new knowledge is created. This is what brings empowerment to the student: finding oneself within the collective. The student does not need to search for authentic knowledge outside one's own capacities, vision, and personal desires. This learning process can only take place if there is a supportive environment for it, and for that space I am, as an educator, responsible. Design-build with first years has been an exceptional experience allowing one to think about design as a liberating form of practice. More than

Fig. 3. A detail showing the connection between three cells.of the entire structure.

Fig. 4. The resulting structure/architecture.

simply teaching technical skills, critical thinking, and developing creativity, the studio has become a space where students learn to empower themselves to find their own sense of freedom, destiny, and their position in contemporary society.

Notes

(1) bell hooks, Teaching to Transgress: Education as a Practice of Freedom (New York: Routledge, 1994, p. 207)

(2) Social recognition as articulated by Charles Taylor in The Malaise of Modernity (Concord, Ont.: Anansi, 1991).

(3) Robert Irwin with Lawrence Weschler, Seeing is Forgetting the Name of Things One Sees: a Life of Contemporary Artist Robert Irwin (Los Angeles: University of California Press, 1982, p. 120).

(4) bell hooks, Teaching to Transgress: Education as a Practice of Freedom (New York: Routledge, 1994, p. 11)

(5) Paulo Freire, Educação como prática da liberdade (Rio de Janeiro: Editora Paz e Terra, 1994).