Interaction between Theory and Practice in Civil Engineering and Construction
Edited by Komurlu, R., Gurgun, A. P., Singh, A., and Yazdani, S.
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ISBN: 978-0-9960437-2-4

LEAVING CHANCE TO CHANCE ON ACADEMIC ARCHITECTURAL DESIGN-BUILD PROCESSES

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Once a student asked me before class: what are we going to do tomorrow? I said: I don't know, we will see tomorrow how it goes. The objective of this paper is to confront two different ways of learning, the class versus on site. We usually think that planning for planning might be the solution, but what happens when planning leaves so little chance to chance? Sometimes approaching design problems without a plan, but with tools and scenarios, works better for a student and community. We will confront these two systems for the same design problem to see which deliver better results for the community and the student's learning process. Which system will make us ready for the unexpected, for the un-planned, for a future scenario where resources will be limited and non-expected, global warming, oil production decrease?

Keywords: Teaching process, Planning.

1 INTRODUCTION

Sometimes I tell my students that architecture is an act of witchcraft, almost a form of fortune telling. In architecture we as architects' project, meaning that we plan, envision something that is not there yet. We project, a reality that someday may or may not happen. This is an act of prediction and guessing. But how can we make the most accurate prediction? It is obvious that we would have to know a lot about the topic which we would try to project. This means understanding the environment in which the projection will live. There are infinite ways of approaching the craft of the design learning process, but we will focus on two: a programmatic and a problematic method. The student, during his or her academic life, will have to learn to design and project based on a program method or based on solving problems.

The following paper deals with which would be an adequate way of learning within the field of architecture based on what the future will be: energy crisis and global warming, confronting two alternatives of "teaching", the problematic versus the programmatic. After describing and analyzing this possible reality and these two different approaches of learning, the case study raises the questions on which would be a more adequate alternative based on a specific circumstance. This case study, that takes place in an academic environment, will illustrate these two teaching technics and in a qualitative analysis will determine the relevance of each alternative.

In order to better guide our students it is important for us professors to try to understand the environment where the student will develop his architectural craft. See Figure 1. Our future environment is uncertain, but here are some facts that might let us

provide guidelines, global warming and energy crisis.

(1) Global warming and climate control, "Currently, energy constraint and global warming are the biggest challenges confronting the planet. (…) The analysis carried out by the US Energy Information Administration (EIA) estimates that, by 2030, global energy consumption will have grown by over 70% (EIA 2007)." Foruzanmehr (2008) and "the building sector is one of the major energy consumers in the world. The proportion of total energy use attributable to buildings generally ranges from 10 - 15% in undeveloped countries to more than 40% in the developed countries (Robertson 1992, p.129)." Foruzanmehr (2008). Meaning that whatever we, as professors, are able to do in order to create consiusnes within this topic might be a most.

(2) Energy crisis and decreased oil production, "as natural resources become harder to obtain, capital is diverted to extracting more of them. This leaves less capital for investment in industrial output. The result is industrial decline, which forces declines in the service and agricultural sectors. About the year 2030, population peaks and begins to decrease as the death rate is driven upward by lack of food and health services." (D.H. Meadows 2004). But ideally we should not see this as a catastrophic future but an opportunity projection, "Heinberg shows how oil peak, peak water, peak food, etc. lead not only to the end of growth, and also to the beginning of a new era of progress without growth." Heinberg (2012).

For our postmodern time the economists, scientists, and politicians make control more difficult. Some facts remain firm and others, like the behaviors or the society are uncontrollable. What is needed is to know how to react, project, plan based on a specific reality and culture where needed.

These tow facts will lead us to the question: endogenous versus exogenous architecture production. The endogenous prediction involves the creation of new economies and the ideal of using and working with what is available, both in resources and technologies. The exogenous ideal is to follow a unified way of thinking-thought process, for example the international movement within the modern movement, which tried to homogenize a system which resulted on disastrous consequences on local architecture and negating local cultures, economies and process.

Which would be the most adequate way of learning for this endogenous or exogenous projection?

The programmatic technique for learning in architecture is a method that may guide the student to solve a design problem based on the modern movement of scientific facts solution, "according to the model of Technical Racionality…-professional activity consist in instrumental problem solving made rigorous by application of scientific theory and technique." Schon (1987). Normally this process is engaged in the classroom, a controlled environment where the paper or the computer can hold everything and anything, making the stakes low for both the professors and students.

On the other hand the problematic problem solving design process is based on the practical, experimental approach to solve the problem, "in practice, Schon sugest, The profesionals work in a different way. In stead of dwelling in the "hills" of profesional certanty, they have to work in the "sludgy valley"of daily life, facing complex and

confusing situations, that do not acept simple technical solutions". Atkinson (2002). The student in this case is brutally confronted by reality in order to solve the problem. The student then has to, or needs to, use his knowledge and research in order to find a way or a solution to solve the problem. When the student applies his knowledge to a practical problem then the information finally gets imprinted. The stakes in this case are very high, because time and resources are limited and also because a failure might have consequences that both the computer and the paper could detain, but not reality. As Michael 2007 states, "is within the workshop where the theoretical comprehension and the social location of a problem is held. With the edification of projects where the evidence of the theoretical knowledge is applied, special in the early steps where the student start his learning by practice but with a deficient theoretical foundation. The learning process in the Architectural Workshop most have a strong experimental focus." Michael (2007). The theoretical knowledge without the practical use would not be a complete learning experience.

The problematic way of teaching seeks opportunities rather than solutions, opportunities for learning rather than the opportunity of creation; it emphasizes the process of learning rather than the result. And later, when the future architect deals with clients or communities will see opportunities for an infrastructure based on their needs and desire rather than an opportunity to design an infrastructure. The difference resides in the way of seeing architecture, not as a product but as a process itself, just as Cesar Pelli says "The practice of an art is an end in itself. We work toward a necessary result, perhaps a sublime result, but the creative act is in the practice." Pelli (1999). Within this process the support of the professor or the guide is essential because he/she has to guide the student and also to ensure that the problem will be solved in an adequate way. If not, the solution might affect the community negatively.

The programmatic teaching is based on the final project; the idea is to construct, to build. The design process is almost scientific leaving no chance to chance, which means almost necessarily that this architecture may not leave chance to chance, and becomes an opportunity for show off the learned or acquired skills but as Schon states "Shein´s use of the term "skill" is of more than passing interest. From the point of view of the model of Technical Rationality institutionalized I the proffesional curriculum, real knowledge lies in the theories and techniques of basis and applied science. Hence, these disciplines should come first. "Skills" in the use of theory and technique to solve concrete problems should come later on, when the student has learned the relevant science-first, because he cannot learn skills of application until he has learned applicable knowledge; and secondly, because skills are ambiguous, secondary kind of knowledge. There is something disturbing about calling them "knowledge" at all." Schon (1987).

During the problematic process the relationship between the student and the "client" or community is highly important because it will create the necessary links and will raise the stakes. The architecture produced by this process in which the process itself is architecture (understanding or thinking about environment) leaves chance to chance. It is an architecture that resides in the use and its subjectivity, rather than in aesthetics or preconceptions or misconceptions of the architect or the professor. Architecture that leaves chance to chance then is not a product but a process of constant construction and life. When should the student or the architect leave? When the

architecture itself starts to formulate its own answers.

Within the programmatic structure the set of tools are taught to the student beforehand so he/she might have them in mind in order to apply them to reality at a later day. With the problematic design process the student discovers those tools during the process itself. This means that he/she discovers what is needed or not needed, meaning that sometimes he would have the chance to discover something that he would not need or apply to the specific problem but this knowledge is already there.

In order to illustrate these two ways of design teaching we will analyze two groups of students solving an academic problem within the same environment: After analyzing and experiencing our university campus; find, acknowledge or mitigate a certain problematic within the use of public space, applying the basic design principles and building the 1:1 scale design.

2 GROUP A - PROGRAMMATIC

Students are given all the design tools beforehand and their focus is product oriented, meaning the product that will express this concepts, the design tools, is the final meaning of the project. See Figure 1. During the process the final objective is the product and how it reflects the basic principles of design. The end is to show the composition leaving the site and it's problematic in second or third layer of understanding.

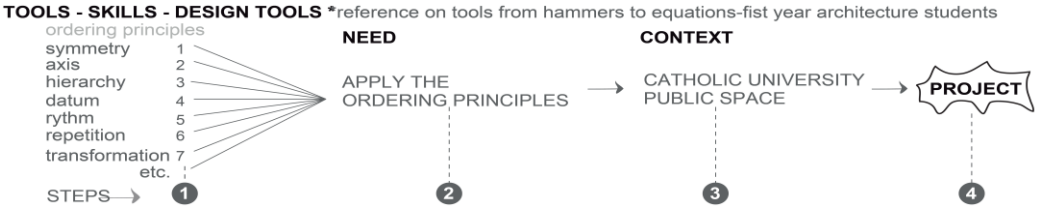

Figure 1. Programmatic approach.

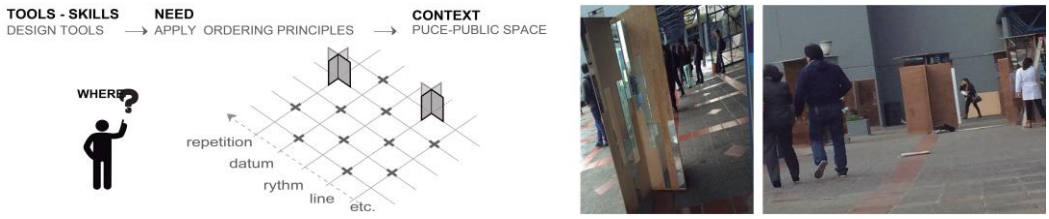

Figure 2. Programmatic approach: proposal and finished product.

The final result of this project was excellent, by the standard point of view in which all the basic principles were present and they made their point in a sculpturesque piece which became something that the people tried to avoid circulating and observe rather than use. See Figure 2. The understanding of the project became almost exclusively for the students and professor. Since the academic exercise was project oriented then the students built their building, installation, and the exercise was evaluated and done.

3 GROUP B - PROBLEMATIC

Students where given the question: what problematic do you would find within the campus? See Figure 3. "Shein's use of the term 'skill' is of more than passing interest. From the point of view of the model of Technical Rationality institutionalized I the proffesional curriculum, real knowledge lies in the theories and techniques of basis and applied science. Hence, these disciplines should come first. 'Skills' in the use of theory and technique to solve concrete problems should come later on, when the student has learned the relevant science-first, because he cannot learn skills of application until he has learned applicable knowledge; and secondly, because skills are ambiguous, secondary kind of knowledge. There is something disturbing about calling them 'knowledge' at all." Schon (1987).

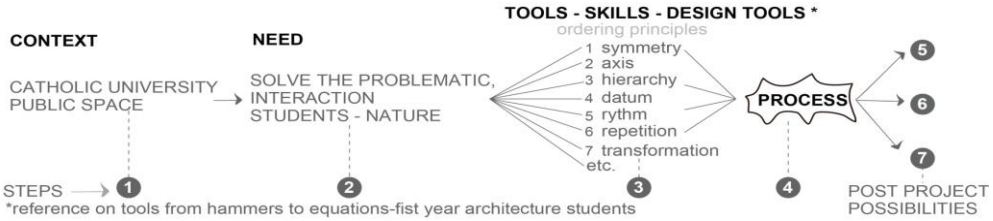

Figure 3. Problematic approach.

During the process the final objective is to try to solve or acknowledge the existing problem using the basic design principles, the means for an end not the end by itself. The final result in this case was a piece that started to be used on the fly and that also used the basic principles of composition but not as an end but as a mean to solve the problem of not acknowledging nature. See Figure 4. Since the exercise was problem oriented the students after the evaluation consider the idea that their project was able to be located in some other place in order to have a more everlasting life, so they install and reuse some of their materials in a park somewhere else.

Figure 4. Problematic approach: proposal, finished product, and reuse in new location.

4 CONCLUSION

For us as professors and professionals it is important to understand the real necessity of learning: learning for pleasure, learning for necessity, or learning by obligation? If necessity and pleasure are combined, then we would not have students, but restless seekers of both knowledge and chances to chances the reality in which they will live.

For a possible future, where energy crisis and global warming, (Foruzanmehr 2008) will be determinant for new generations lifestyles, two probable economic systems where brought: endogenous and exogenous (Lietaer 2005). Based on the academic exercise mentioned before, if we choose to act or project endogenously, then group B might succeed because we would have students that might base their action on solving problems and researching the best ways of doing it based on the study or their physical and cultural environment, and if there are no specific tools to do that they might be able to generate their own. The process is collaborative and pertinent to the culture of the place, acting endogenously. The work is necessary and uses the necessary tools in order to solve the problem, neither more nor less; the same applies for the use of resources. The student then is prepared to not be prepared, leaving chance to chance. Then he/she would be able to acknowledge-recognize problems rather to solve them. The idea is to know what to look for and not look for the answer.

If exogenous (Fernandez 2014) is an option, then probably group A might be a better option because they might have been acting in order to have an object rather than a process. This means attracting attention to the object itself because of its beauty of scientific characteristics but not because of its territorial or cultural pertinence. The student might project his wishes and display his knowledge rather than use this knowledge in order to solve problems, leaving no chance to chance within the projects. Group A developed a high level of competitive spirit due to a need to show off. Based on this observation then the use of tools and resources might be limited only by the need to showoff and not related to the needs inherent in the problem not by the needs of the problem.

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