Beyond the Edge

Design Projects & Pedagogy that Encourages Students to Become Actively Engaged with the Environment Surrounding Their Project

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INTRODUCTION

It is the authors' experience that projects where each student's 'building' is part of a larger project that the class is designing appears to force the student to consider how things outside their own property limits can and do effect their designs. This cogitation is usually strongest when models are used as part of the design process and usually appears when the models are first assembled as a whole project. The usual first response is "can the instructor do something to stop the adjoining projects from ruining my project." The instructor can easily develop this initial response into an investigation of zoning, covenants and building codes and thus demonstrate how the urban fabric is developed, formed and modified.

This phenomenon was first experienced when the class was given a row house to design and during the first crit the models were assembled to create a street. This phenomenon again appeared much stronger in a later class when the problem was to design the housing units for a small subdivision with each student assigned a separate lot. Again it appeared when the preliminary models were assembled to form the subdivision. It also appeared when students were assigned the same site and the models were placed along side each other as if they were on adjacent sites.

THE PEDAGOGY FOLLOWED

In developing these studio exercises the following principles were followed. The tools for practicing architecture, construction management and planning are rapidly changing, as is the form of practice. The authors do not use the "tools of the trade" that was taught in school, nor is the form of practice the same. It is likely that the students will have to function in a world that bears little resemblance to what we now experience. While, we need to teach the principles, methods, theories and "tools" currently in use, we must also teach concepts and methods of approaching the built environment that allows the student not only to grow and change with the profession, but have the ability to develop new ways of approaching changing technological, social, and environmental issues.

Designing *(and learning)* is an iterative process, therefore, the classroom environment is developed where the students are encouraged, not to wait for the great idea or correct solution, but, to develop and grow their ideas into the 'great solution'. In this process, the students need to be encouraged to consider the implications of their decisions and enticed to do a great deal of technological and philosophical research, writing, and analysis to assist them in developing a rationale to support their work. The students are asked to examine both traditional and innovative solutions and participate in active discussions of current topics relevant to the work are strongly encouraged as part of the process.

Additionally the studio environment is structured around "problem based learning" techniques as described by researchers such as: D. A. Schon, in Educating the Reflective Practitioner, D. A. Kolb in Experiential Learning, P. Little in Educational Change Through Problem Based Learning, and D. Boud in Problem-Based Learning in Education for the Professions. The assignments given do not have a predetermined correct result. Rather they give a direction for investigation that leads toward a number of possible solutions. In organizing the courses, the recommendations of R. S. Zais in Curriculum Principles and Foundation are followed. He suggests first to determine what the purpose of the education is, then develop a course plan and method of teaching that produces that result. The style of teaching followed is that of a coach and learning manager modeled after techniques for teaching technical

subjects described by Lee Harrisberg in Education for the Professions.

Assignments usually are divided into many segments, each with its own due dates, similar to the way work is scheduled in a professional environment. This scheduling is normally developed with the whole class participating. This appears to have several benefits. The students learn how to negotiate and organize a workable schedule. The total student workload *(including their other classes)* is spread more evenly across the available time. Breaking projects into a series of smaller steps allows the students to deal with many complex issues. They have less of a tendency develop "mental blocks" that arise from trying to do the whole project at one time. It also provides the opportunity for many small public successes, which in this process appears to encourage the students to work harder. The authors always try to create a supportive class environment where the students assist each other in the class, in research, and most importantly in learning.

EXAMPLES

The first example is the major assignment for a second year design studio taught at Texas A&M University. Traditionally a single-family house design was the major assignment for this course. The assignment was modified in two major ways. The first was to give each student a separate lot in a subdivision designed to accentuate the problems with adjoining sites to encourage the development of discussions on the need for convents, setbacks and other design constraints and guidelines. The other adjustments were to restructure the problem to fit the principles of problem-based learning. An important and somewhat unexpected benefit of this particular assignment was that the students seemed to be much more engaged in what was happening outside the boundaries of their project than was normal for students at this level.

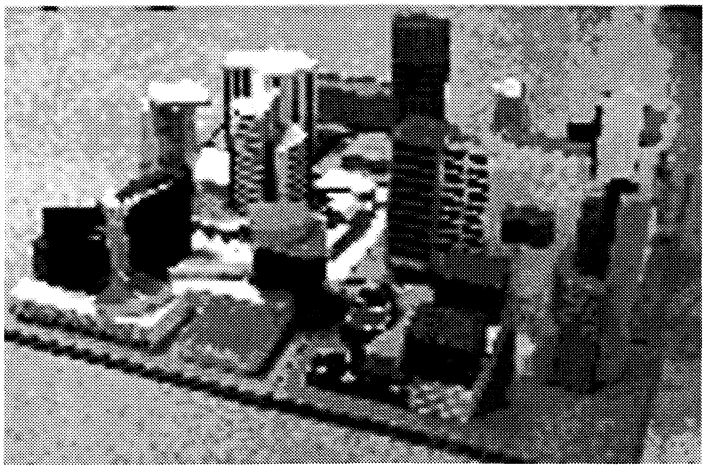
Using problem-based learning principles the project was restructured to change the focus of the question. Rather than giving the students the usual brief; the students were asked to determine if it was possible to mold the built environment to the inhabitants; instead of the usual situation, where the inhabitants mold themselves to the built environment. An iterative process was followed. The students were to first determine what activities' people desired to do in a home and design a structure(s) that would allow these activities to happen. Teams were formed to write short "plays" about people *(including themselves as they were to be a resident of the house)* doing everyday activities in a home environment. These plays were mapped *(acted through drawings or models to scale on a specific site)*. The sites were adjoining lots in a community designed to expose many design problems. Once a week the individual models *(homes)* were assembled into the complete community. It appears that when the individual models were arranged into the complete development is where the students' cognized the most about what environmental design could be.

This mapping was first developed in 2-dimensions then progressed to 3-dimensional buildable objects. As with real life, the plays *(the site activities)* were dynamic, always changing as the experience level of the participants grew. Therefore, the actual form and content of the built object *(the home)* continuously changed as the students developed the activities. At first all activities were to occur at the best possible location without regard to any other activity, however, as time progressed it became apparent that some activities conflicted with others and that there were natural groupings of activities. The students also became very aware that activities on one site could seriously conflict with what was happening on other sites. So meetings between groups were held to settle differences, agreements made, and rules were invented. These conflicts allowed zoning, building regulations, laws, etc., to be discussed in a meaningful way.

The students being engaged in what was going on outside the boundaries of their sites was an entirely unexpected benefit of the having students working on adjacent sites. This was the most successful, easiest, and least painful attempt that one of the authors had up to that time in getting the students become aware on how the surroundings effect architectural works and how architectural works effect it's surroundings.

The project produced a very detailed model of what most would call a 'community'. Although each student and student group built only a part of the model, they all felt that they contributed to the whole and that the entire community was theirs. The student reaction to this project was at first was guarded, but as the assignment progressed the work became real. It was no longer just an assignment to complete, but grew into a real experience, a part of their life. It seemed to develop a life of it's own.

Picture One – In Process Model. 2nd Year Design Studio. Texas A&M



Picture Two – In Process Model. 4th Year Design Studio. Tuskegee University

The second example is the work from a fourth year urban design studio taught at the University of Melbourne, Australia. Again, problem-based learning principles were followed. In this example the students had to first design a major subdivision including a community center with facilities for shopping, schools, medical center, police, fire and other related community service facilities. All of the fourth year design studios participated in this project (5 sections, 75 students). In the first phase, teams of five students, design a development plan for the new community. Then one of the designs was selected to use as the development plan and each student was assigned an area to design the buildings for. Some students ended up with single-family residential units, others multi-family or part of the community center.

At first the students were very hesitant about the project and came up with all sorts of reasons against the project. Including what happens to the overall project when someone does not complete their work and they didn't want the work of some of the other students to be next to theirs. However, almost all doubts were replaced with enthusiasm when the overall model first went together. The sight of the large overall model was breathtaking, as it was almost 20 feet wide by 40 feet long.

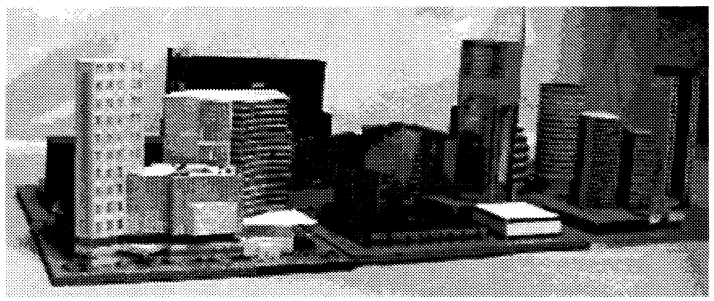
At this time the students became very, aware that activities on nearby sites could seriously conflict with what was happening on their site. Their response was the typical "can the instructor do something to stop the adjoining designs from ruining my design" assertion. Lectures and productive discussions were held about codes, regulations, restrictive covenants and other devices that communities and governments use to control the built environment. The students also became engaged in discussions on the moral responsibly of the architect to consider the effects their designs may have on the communities. The concern on how unfinished projects would affect the overall model vanished as it just looked like real community with vacant lots or unfinished building projects. Again having the students design using models on adjacent sites proved to be a very successful, easy and rather painless way to have the students become aware and engaged on how the surroundings effect architectural works and how architectural works effect it's surroundings.

The students' interest level remained high throughout the project and became very excited whenever the model went together. They were very proud of the whole project not just their own work. It really became something beyond just another assignment to complete but grew into a real experience.

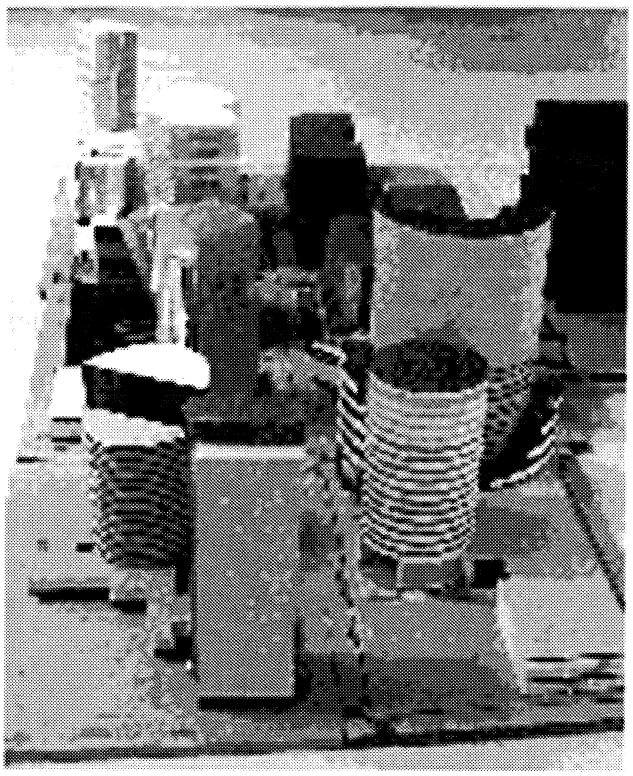
The third example a fourth year design project at Tuskegee University. It is a very large mixed-use high-rise complex in the center of the CBD, where all the students were been given the same site, a large urban block. Each team had to build their models from center of the street to center of street so that the models could be assembled into a developed section of the CBD.

Though each design was very well articulated and appeared to work well in context as well, if not better than, the previous examples, however the interest in off site influences was much less pronounced than in the other projects. The students were as in the other examples required to design using models as a starting point rather than drawings and work thorough a series of 'sketch' models starting with basic form models gradually developing each following model into more detail designs. Each week the models were assembled together into the 'CBD'. There was noticeable change to the designs after each time they were assembled that appeared to in response to the other students models, however it was less than what was expected and there were fewer discussions on codes and zoning requirements than normal.

It appears that the reasons for this lowered interest in off-site influences is the effect of a lower apparent density for the buildings in context than in the previous projects. The project, because of where it was located in the CBD and the wide street right of way caused it to appear less dense than the other ones described in the other examples even though the density was actually much higher. There was just too much of an open feeling to the project to cause the students to become engaged in how the surroundings were affecting their project. See Pictures below.



Picture Three – Final Model. 4th Year Design Studio. Tuskegee University



Picture Four – Final Model. 4th Year Design Studio. Tuskegee University

Picture Five – Final Model. 4th Year Design Studio. Tuskegee University

IN SUMMARY

It appears that students if required to develop their designs through building a series of physical models will tend to develop more articulated designs especially if each project is on an adjacent site with an high enough apparent density and if the models are placed together frequently enough. In addition the students will develop an interest in how the adjacent projects are conflicting with their design. With this increased awareness that activities and buildings on one site could seriously conflict with what was happening on theirs and other sites gives the instructor an opportunity to effectively discuss context, zoning, building regulations, laws, etc., in a meaningful way.

The students being engaged in the context of what was going on outside the boundaries of their sites is a benefit of the having students designing projects on adjacent sites. It is the most successful, easiest, and least painful way the authors have used to getting students to become aware and engaged on how the surroundings effect architectural works and how architectural works effect it's surroundings.

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