

Teaching Design at the Limits of Architecture.

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Abstract:

Pre-industrial architects inherently knew the effectual dimension of design through its materiality, detail, and form. Until now, the intellectual dichotomy of human thinking held that mind and body were separate entities, drawing a distinction between reasoned thought and feeling. The early Greek philosophers distinguished between these two realms. Theories on beauty, the human aesthetic impulse, and design were divided along the objective and subjective lines for centuries. In more current architectural terms, the objective dimension of industry gave structure and perceived virtue to the modernist paradigm, while at the same time clearing the way (tabula rasa) for the rampant subjectivity we now see in the idiosyncratic expressions of so many contemporary architects. By revealing the relationship between our physical and mental processes, neuroscience re-situates the debate on physical reality well outside the intellectual enterprise of aesthetically driven design. Clear measures can now be evidenced, documented, and applied to establish a new, more effective, and humanly engaging way to build. This new architecture draws upon those mechanisms of neuro-connectivity that help us to feel safe and secure.

From this knowledge we have developed a new model for building/rebuilding the world, called Intelligence-Based Design. Intelligence-Based Design is the purposeful manipulation of the built environment to engage humans in an essential manner through complex organized information. Intelligence-Based Theory evidences the direct neurological evaluations of surface, structure, pattern, texture, and form, etc., and maintains that our sense of wellbeing is established through positive neuro-engagement with the physical world at the deepest level common to all people, i.e. "Innate Intelligence". This paper describes a senior architectural design studio taught using the precepts of Intelligence-Based Design. We describe our methodology, and the successful implementations of both theoretical concepts and practical ideas on pedagogy. We also relate in some detail the numerous conceptual obstacles we came up against; almost all of them attributable to the anti-architectural training students tend to receive inside contemporary architectural programs.

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1. Introduction.

During the fall of 2008 we jointly taught a senior level Architecture Design Studio. Our objective was to engage students with issues of scale and form as these pertain to an Intelligence-Based Architecture (IBA) (Salingaros & Masden, 2006; 2007a; 2007b; 2008). Students in the course were advanced design students educated in a contemporary architectural program, and thus representative of the vast majority of similar students in Architecture schools throughout the world. Wanting to develop a teaching model for Intelligence-Based Architecture, we chose to challenge our students, and our theories, by locating the project in one of the most difficult sites we could imagine: the newly developed main corridor of Dubai's business district. Given the extreme abstract nature of this site, we were interested in designs that could reconcile, or mediate, the tremendous disconnection between the double-loaded corridor of skyscrapers, and the severe lack of humanly adaptive architectural elements that the site presents.

Our goal was to have students establish an urban fabric that was effectively layered with vital architectural information so as to connect the local people with the built-environment in a healthy and engaging manner. The newly constructed strip of towers, by way of their scale, simplistic geometries, site placement, orientation, materials and articulations, is conceived as a sign of progress and power and not as a humanly adaptive settlement. We emphasized that the point of the studio was to connect human beings through informational structures such as scale, adaptive design, and detail to a region where we felt such connection was absent. One advantage of this location was presented in the newly inaugurated Dubai Metropolitan Transit System (Metro), a raised mass-transit that runs alongside the central highway. The system was scheduled to open soon after our studio took place, and it provided the necessary basis for the pedestrian network. In this way, we could work with both car and pedestrian networks to generate living urban fabric.

Another point of the studio was to encourage the understanding, utilization, and development of form languages, elements crucial to providing additional vital information with which to connect more deeply with the built-environment. This location was ideally suited for the application of a Traditional Islamic Form Language thus several lectures were presented that described aspects of both form languages in general, and the various branches of Islamic Form Languages in particular. This studio presented a unique opportunity for American students to become familiar with the glories of Islamic Architecture, not in the usual detached historical context, but in immediate application. We wished to avoid an automatic, thoughtless application of the Western modernist form language as a matter of fact, and to open the students to the possibilities of either using a historical form language (one already adapted to the local social and building cultures), or to developing their own form language from the cultural imperatives of this unique place in the world.

A final aspect of this studio was its direct involvement with local professional architecture firms. This involved a two-part approach. First, we decided to free the students from the habitual dependence upon academic architects used as critics. We therefore asked practicing architects who are members of three local architectural offices to serve as our critics for the studio projects. These were professional architects who understood first hand the necessity and application of detail work in design. Second, we decided that a year-end jury is an ineffective means for teaching students whether their project is actually moving in the right direction, since it is too late by then to make any adjustments. We therefore held a mid-term full jury, with all the students' projects exhibited and critiqued. It turns out that this intermediate critique from the professional architects provided a key inspiration and influenced how some students further developed their final projects.

2. Scaling: an architectural system of information.

We began the semester with a series of visual exercises intended to make students look at complex scaling relationships in the local built environment because of the invaluable information that these structures provide when analyzed correctly. The exercises were derived to address a range of building typologies (residential, commercial, government, religious, educational) and siting conditions (urban, near urban, and suburban). Students were asked to take a progressive series of photographs, from close detailed images, backing out to the entire façade in proportional intervals in 1/3rds, of different buildings that contained coherent scaling relationships in detail, structure, and form. They were also asked to identify and document buildings that lacked this information, for comparison.

One purpose of these exercises was to have students look carefully at buildings from a more immediate perspective. Once this type of complex information was revealed through the photo sequences, students could better understand both the effect and the importance of scaled information to humanly adaptive architecture. We then asked the students to apply similar strategies to their own design work. What this meant was that drawings and models had to depict multiple scales within their designs. Limited classroom space required that we construct the site model at a smaller scale than we would have wanted (1in = 20ft), so students were asked to supplement the site model with more detailed design drawings and models ranging in scale all the way up to a full scale, 1 to 1 ratio for architectural details. Prior research has shown that drawing and/or modeling at the largest scale is the most effective way to reveal the weakness in a design's scaling coherence, which is an important informational component of Intelligence-Based Design. Modeling or drawing at full scale is always best whenever it can be done. This type of large-scale detail work is very important for student architects since they have seldom experienced the built environment in an architecturally conscious manner.

During the scaling exercises students were also asked to consider the scale of programmatic requirements, i.e. function and program. Using a corresponding ecological model to demonstrate the effect of scale, students could understand the

importance of multiple programs at varying interacting scales. The first and most obvious concern for Dubai was the large occupancy of the newly built towers. Such towers present a greater density of a singular program than traditional urban models. When thousands of people have the same front door on a city street, the process of urban scaling is severely impacted. To offset the extremes of the site students were asked to develop additional multi-scaled programs, i.e. schools (daycare, high school, university etc), retail (clothing, electronic, food etc.), service facilities (travel agents, attorney, restaurants etc.), religious facilities, plus commercial and residential facilities on a human scale, to balance or break down the programmatic scale of the towers and the enormous empty urban spaces in-between.

The occupancy density of the towers puts a tremendous number of people on the street during the morning rush, afternoon lunch, and evening rush. Utilizing the scaling logic of 1/3rds (Salingaros, 2005) the urban paths and spaces were pared down from the largest to the smallest in a manner that allowed paths and spaces to facilitate people rushing to and from work while establishing an informational logic that was comfortable and familiar to the intended user. Interlacing these new programs with the existing buildings and open spaces permitted the development of a more human oriented and organized urban space that is multiply connected. The new variant programs also gave reasons for pedestrians to stop along their way to and from work/home, which reduces the concentration of people moving along any one urban path, avoiding a pedestrian queuing effect.

Next we addressed the issue of vertical development within the site. The scale of the current towers is far removed from anything that would be considered human. It is also limited, for the most part, to only the largest vertical scale. When combined with the vast empty ground plane, the extreme scale of both offers little immediate information for humans to connect to and thus all but negates a human presence in this open abstracted terrain. Student designs needed to be planned and programmed in a manner that would develop tectonic, material, and architecturally detailed information at both the human scale and the city scale. Utilizing the scaling factor of 1/3rds to develop the vertical scale of the new program, students were able to create a new multi-level urban fabric that established effective scaling coherence within the field of large towers. Combining this process with their evolved plans ultimately yielded designs that spoke to the appropriate apportionment of field and ground as well as the humanly satisfying aspects of sectionally structured urban spaces (utilizing the Transect promoted by the Congress for the New Urbanism, CNU) (Salingaros, 2006). All of these scaling dimensions contain appropriate levels of information to effectively engage human beings neurologically, as described by Intelligence-Based Design.

3. A fixation upon Platonic shapes loses information.

During the process of laying out the urban paths and spaces we noticed a restrictive design behavior with our students, which drew concern. Most students

could not see beyond their object-oriented, form-based training to be able to design an urban field of congruent structures. When shown effective field and ground studies, and asked to design for pedestrian movement within the city, students consistently deferred to pure platonic shaped spaces with an overabundance of urban paths cutting the program into unusably small areas.

Students simply could not understand the more immediate relationship of the city in terms of its paths, spaces, and program. Nor could they understand the concept of figurative space vs. figurative buildings. It wasn't until the structure of the city was explained in terms of human movement (as in the pedestrian circulation within a building) and the relationship of function to program (office spaces versus hallways or corridors), that students began to let go of their object-oriented, form-based predilections. Even then, there were still students who were unsuccessful in letting go of their geometrical prejudices. Those students either refused, or for some reason could not design pedestrian paths, but instead continued to present pure geometric forms imposed on the plan.

The whole point of the scaling exercises was to break out of the confines of "pure" Platonic forms, to emphasize the informational complexity of living urban fabric that is due to its entire substructure on different scales. We explained that, in designing living urban fabric, priority must be given to the pedestrian paths and human spatial experience, which is antithetical to the abstract geometries of modernist built forms. "The pedestrian paths amalgamate into pedestrian streets, which are flanked by buildings, so those buildings must help reinforce and inform the paths". The only exception is a singular monumental project or event that assumes a formal appearance by necessity, which was clearly not the objective of our studio. Nevertheless, there seemed to be a deeply-ingrained ideological bias, and a reductivist sensibility on the students' part, which kept making them respond with Platonic solids whatever the design problem. It should also be noted that there is a certain design economy in simplifying forms that provides an easy way out for students who might be underachievers. The ideological imperative for an objectively pure design provides the perfect cloak for this type of non-design.

4. Adaptive design and reuse generate architectural information.

The notion of adaptive design also proved foreign to our students. In a modernist architectural program where innovation and novelty are celebrated, students have a desperate need to invent anew. But the processes of adaptation are vital to Intelligence-Based Design because they extend or intensify the information field that humans effectively connect with. Our students treated their initial/original work as if it were somehow precious or divine. When faced with an unresolved problem in their original proposals, rather than search for an adaptive solution, students threw out their initial design to invent a new one. The notion of advancing their designs through adaptive strategies seemed to overwhelm them. This paradigm was difficult to overcome. Every time we suggested that their design should be MODIFIED, which is to say, ADAPTED, they refused to do it, and would re-

invent a new form altogether. These new forms were invariably just as non-adapted as their previous attempts.

And yet, we were trying very hard to teach them the process of adaptation by making gradual changes. Without that concept, there is no adaptive design possible. It seems to us that our students' prior training did a very good job of erasing any possibility of adaptation by instilling some ideological fixation of a design's stand-alone, non-adaptive qualities. Towards this end, we desisted from criticizing their first attempt, even though there was a tremendous variation of quality among the students' first ideas. Some were simply silly or ridiculous, but we did not say so. We accepted whatever they came up with and tried to get the students to EVOLVE their project recursively through adaptation towards a better design, as judged by eventual use. We urged them to improve their initial design through a sequence of small steps by imbedding layers of new architectural information.

Students had to be shown adaptive strategies and encouraged constantly. After several attempts on their part to find the perfect form all at once, we simply would not allow them to invent yet another geometrically rigid or fixed solution. At the appropriate time, we had them stop designing anew and start using their own first attempts as contextual entities to be altered and adapted, or to be addressed with adjacent structures they were to design so as to provide a more appropriately urban solution. Most (but not all) of our students successfully learned to adapt their designs through small steps, and their final efforts were quite successful.

5. Form Language as cultural and tectonic information.

As the designs began to congeal around this new way of thinking, and the paths, spaces, and massing had taken on a greater level of coherence, we introduced what was yet another unfamiliar notion to our students: that of an architectural form language. This too provoked a bit of hesitation from the students, who had come to believe that design within an architectural language was mere style or decoration. Many desperately held on to their object-based beliefs until the last possible moment. Many dismissed the idea of form language as an exclusive expression of historical architecture. They felt that if their design wasn't conceived in some inexplicable modernist form charged with hyper dynamics, it was of little or no value. What was worse is that when told they could draw from the rich form languages of other great urban architecture, and then adapt these to their context, many were unwilling (in fact, almost frightened) to do so. At this point it seemed that many would rather fail the class than imagine themselves copying the ideas of others (even though that was precisely what they were doing anyway). We tried hard to discern if this was a form of indoctrinated architectural design arrogance or ignorance, in that they simply could not see what we were saying.

More than one bright student would not accept the challenge of abandoning or adapting the modernist form language they had been taught throughout all their years in Architecture School. They came up with all sorts of spurious explanations of how they were developing a new form language, whereas in fact they were

stubbornly sticking with the modernist one. We did not push them but only encouraged them to open up, and if they insisted upon their chosen form language, then that was their choice. In this group, some students who were also working part-time in an architectural office had enough technical skills to create a decent project, albeit totally non-adaptive to the climate, culture, and site; but those with no practical experience remained stuck in a very poor and non-adapted dead-end design. There was clearly a psychological block preventing them from using the ideas we were offering, even when they could see that their usual method of working was not producing anything of either value or interest.

We suspect, but cannot prove, that students could not, based upon their previous training in architecture school, accept the very idea of a plurality of form languages. Doing so classifies the modernist vocabulary as simply one of a multitude of viable form languages, which certainly contradicts what students have been taught in their previous courses (i.e. that the modernist vocabulary is somehow endowed with a sacrosanct, unique status as the ONLY permissible architectonic expression for our times). Our goal was thus sabotaged by the reigning architectural doctrine.

By taking students to local structures that possessed a human sense of scale and connectivity, and local structures that did not, we were able to better convey the effect of this dimension. Still, their first response was to try and invent a completely new form language of their own. Once students realized that developing a form language is complicated and best left to time, purpose, and context, rather than idiosyncratic inventions, they were more willing to draw from other sources and consider form languages that had evolved in other places over time. For those students who still wanted to invent their own language, they were given a series of design detailing exercises working through multiple scales of the assembly of materials, structure, and form. Only a few were able to develop their own language, which was superficial at best, yet was of interest to us given the nature of our study. Most were happy to just be able to successfully apply an already developed language to their designs. Some who did develop a new form language did so on the superficial or ornamental level rather than on the deeper tectonic level. Still, we encouraged these efforts as a new dimension of their originality, and their projects looked great during the critique.

We had uniformly good results from students who were either foreign students from Mexico, or Mexican-Americans from cities close to the US-Mexico border, where the Mexican architectural tradition is still strong. Those students immediately grasped at least part of what we were after, and drew upon their stored memory of traditional Mexican architecture. They discovered that they could import a traditional Mexican Colonial form language to their project. Nevertheless, after this first step, they evidently had a conceptual breakthrough, because they then began to innovate and develop their own form languages instead of just repeating traditional forms. Breaking out of the standard modernist form language was clearly enough to open up their mind to the infinite possibilities. The less-driven students of this group just took the easy way out and recycled a traditional Mexican form language for Dubai, even though we told them this was not entirely appropriate. At least, they

could begin to see how such information worked through the processes of Intelligence-Based Design to foster a greater connectivity between human beings and the built-environment.

6. Design process, color, and texture: adding layers of information.

Our research shows that an architecture that connects with humans in a neurologically satisfying manner typically contains rich visual information in color, texture, pattern, scale, and form. Students were asked to consider these aspects of the built environment when developing their own designs. One exercise required that they prepare large samples (1 meter square or bigger) of the colors they were intending to use. Another exercise asked that they resolve their structures on a detailed level at a full scale. Again there was resistance. Student could not imagine how anything could be gained from these exercises. However, once these samples of their work were presented, the strengths and weaknesses of each idea became evident to everyone. To simply imagine the color of a wall is quite different than standing next to a life-size sample of color. Your imagination when looking at a small color swatch can't compare with the real sensations that a larger information field elicits. Students were then required to fold this information into their work to advance their designs toward human connectivity.

After an entire lecture on the importance of color, our students were told to choose two main colors for their project, to which they could later add as many colors as they wished for use in lesser proportions. But they were to prepare large panels of those two main colors so that we, and the rest of the class, could judge how it felt to experience the color standing right up next to it. Nobody followed our instructions! They all came to class and pinned up 1in² swatches of color. The students did not believe us when we had told them of the tremendous emotional response to color, and that the effect has to be experienced on a human scale.

These new ideas were foreign to our students, and for most of them the process of design had to be relearned. Since it was important to give students time to assimilate this new information, their slow progress limited what we could accomplish in one semester. We spent so much time deprogramming the students, and there was less time for the actual design. To address a new educational model, the principles of Intelligence-Based Architecture would need to be taught earlier and more effectively throughout the undergraduate curriculum (Salingaros & Masden, 2008). When discussing these new provisions in design education with our peers, we found that most were unwilling or unable to debate the importance of such ideas. Most academic architects today teach from their own ideology and related design experience, and thus consider the type of educational model we were exploring as something intrinsically traditional and thus as somehow not validated in a modern world.

7. Situational issues/cultural component.

Dubai represents a critique of the condition of modern values and the weakness of modernist design. Capitalizing on the iconic seduction of modern abstract building designs, Dubai has developed its new world at an unthinkable cultural distance from the people who will come to live there. Dubai's goal of global identity, seen here in a *tour de force* of scale, actually negates the very thing that gives cultural identity to a place. It has lost the human dimensions of design and the rich informational structures that indigenous work carries with it.

Over the last several decades the 20th century idea of an International Style has diminished cultures around the world, leaving in its wake a Western vision of international pretense. Our students and students around the world have been made to believe that unless their work looks like these Western models, their designs have no credibility. Other culturally rendered designs, those conceived outside this paradigm, are considered as somehow possessing less value. Even our students from Mexico look to the famous Western designers for their inspiration, and not to the local materials, climates, practices, and traditions of their own culture. Dubai reveals the extent of this disconnect. It is the people of Dubai that carried with them the rich cultural traditions of their past and who will ultimately give identity to this unique place in the world. Just as it is the people around the world in their hometowns and villages that must be consulted before any formal vision is rendered on their behalf.

Western architecture forcefully presents its own generic and superficial culture. Its culture is a dominant ideology that places iconic forms above all else. It is a self-reinforcing logic that perpetuates itself through its abstract language. It is not a system of beliefs that can adapt to the specifics and the uniqueness of place. Rather, it seeks to disseminate its own beliefs and values across the global field of variant cultures. In a further degree of abstraction, these forms are simply imaged in the mind of some individual with limited, if any, concern about others. The fact that many contemporary designs could just as easily be placed anywhere on earth is very telling of their placelessness.

Admittedly, early expressions of architecture were often disseminated throughout the world as a means to signify the dominance of one culture over another. But before the time of modern industrial and advanced technology these forms still had to be adapted to local conditions, constructed of local materials, and made by local craftsmen who carried with them the traditions of their own culture. This adaptive process (forced by the restrictions of building technology in those times) helped to make such buildings more intrinsically contextual, whereas today's structures operate beyond any limits of place, and carry with them only the markings of an imposed ideology.

Given no clear test for what good architecture is, students these days quickly discover that if they can think of some clever explanation for their design, it will garner more positive attention from their peers and professors. This expedient draws students further away from their own lived experience, and conditions them towards an abstract way of thinking and a media-oriented justification for any type of design (by this we wish to relate architectural discourse to advertising that

promotes a useless product through clever packaging). Abstract thinking too often necessitates the dissolution of information to strip an idea bare of these vital structures. While this may present some value in an academic exercise, students are never taught the limits of such exercises, and come to believe that this is what architectural design is all about. As is evidenced in modern cities around the world, this practice does not serve the human condition: it only negates the connective dimension of human life, instilling and eliciting anxious behaviors from those that must reside in the immediate proximity of these abstract forms.

8. Object-oriented design thinking and minimal information.

Unlike students of medicine or law, who are taught the principles of their field before they are encouraged to speculate, architecture students are asked to invent from day one of their formal education. Having no real criteria to guide their efforts, students must develop an unprecedented sense of self. This conditions their personality and develops what would be considered negative characteristics in any other profession, i.e. an arrogance in their work that makes it unquestionable. Such conditioning establishes in students a sense that their opinion about design is somehow just as valid as that of a professional architect or an architectural professor. Remnants of the early Gestalt psychology and the co-option of the heuristic method of problem solving still permeate the educational models of modern architectural academic institutions. Without real criteria to guide design, endless subjective speculation is all you have.

Going back to the exercises such as the color panels (Section 6) that were consistently not performed as we had asked, the psychological conditioning of our students in previous architecture courses might help to explain what was really going on. One of us (NAS) has never witnessed such a total disregard for instructions from a professor: a specific project explained in great detail, following a rigorous theoretical explanation of what the exercise is supposed to accomplish, was re-interpreted according to the student's own prejudices. Ignoring our explicit instructions went far beyond the common phenomenon of homework not done; it represented instead an assertion of the student's opinion as being more valid than that of the instructor. And this uncooperative behavior was coming from students who were for the most part personable, friendly, and pleasant to work with. Refusal to do the work in the way we asked was not due to any hostility, but because it clashed with some prior conditioning.

9. Student preparation, or lack thereof.

One of us (NAS) was shocked by the lack of preparation of our senior students. It was to be expected that they might have some difficulty with the elementary mathematics of scaling, because architecture schools do not require much mathematical background of their students, but their architecture background was terribly deficient as well. Aside from those few students in the class that were already working in a practice, the others did not appear to know the simplest

concepts of what makes a building stand up, nor about the user's experience of entrance, spaces, circulation realms, surfaces, natural light, etc. The students were focused almost exclusively upon formal design ideas, an approach that they were undoubtedly taught in their earlier classes. NAS talked with the past Chair of the Architecture Program, and tried to understand why this situation was occurring.

"I talked with my old friend who, as Chair of the College of Architecture for the previous couple of years, was responsible for a major re-organization of the curriculum to better prepare students for a design career. I was not personally involved in this effort because I am a member of another department, so there was no protocol in place to formally solicit my input. This effort by the previous Chair showed, however, that the Architecture School was concerned with improving students' readiness for their professional career. As this was a delicate topic — the possible criticism of the entire method of instruction — I trusted that our established friendship would overcome any reluctance he might have had in addressing my questions. I mentioned that I was trying to understand why my present students, who were seniors, showed such little grasp of architectonics, even in the most basic concepts. After several conversations, my questions received no satisfactory answer, and I only succeeded in putting my friend on the defensive, which was never my objective!"

Another shock occurred with what was arguably the most design-deficient student in the class. This young lady kept to a simplistic design for a box and could not be induced to adapt her design in any way. All our conversations about climate, local needs, paths around her building had no effect whatsoever. Then one day almost at the end of the semester, we were surprised to hear her repeat Le Corbusier's absurd dictum: "The plan is the generator, so the building is simply the simple rectangular plan pulled up, with glass façades added". That is why she had refused to learn from all the design methods we had been offering: she was stuck with this one (flawed) notion, to which she clung desperately. We could not figure out if she had been taught this in a previous class, or if she had picked it up from reading. In any case, this one slogan was sufficient to prevent her from learning anything about architecture. Because her efforts met the criteria of the College of Architecture, we had no choice but to pass her.

10. Conclusion.

What we observed during this design studio validates our earlier findings, i.e. that formal abstraction in design only distances students from their physiological understanding and engagement with the real world. The alarming aspects of this conditioning cannot be ignored. Students trained in this "modern" architectural thinking lack the perceptual skills to see, experience, or understand the implications of architecture as a connective structure for human engagement. A more hands-on educational model is needed to encourage students to participate with the built environment in an immediate sense. The abstract nature of design and design drawings necessitates the constant and intentional engagement with real buildings. Students need to trust their instinct over their intellect. They need to be taught to

recognize the sensory dimensions of the built environment that positively engage everyday humans, and which thus provides a greater sense of wellbeing. One problem that we face as educators is that few good examples of human architecture still exist within our cities. While iconic architecture may serve as a recognition of man's technical advancement for better or worse, Intelligence-Based Architecture serves the rest of us in the buildings in which we live, by connecting us with the built environment in a meaningful and nourishing manner.

APPENDIX: Our end-of-semester exhibit that did not take place.

Although our students lost a lot of time in picking up all the concepts we were introducing to them, most of them eventually did open up and indeed began to develop rather interesting and practical projects. Some of the projects contained parts that were really beautiful. We had, from the very beginning, engaged three local architecture firms to lend their staff as members of our jury, and had a full mid-semester review. The professional architects gave excellent practical advice, reinforcing our own teachings. Some of our students were finally convinced of what we were trying to teach them only after the professional architects told them exactly the same thing in the context of their own projects! If only for this reason, this was a tremendous teaching experience.

The architecture firms were happy to help us (*pro bono*) and were very pleased with several of our students' projects. Considering the quality of our students' work, we planned on using the end-of-semester show to structure a traveling exhibit of this work. We reserved the College's large exhibit hall to set up our main model of Dubai's existing double-loaded row of skyscrapers. Our students had prepared cardboard models of their projects to scale that fit congruently together into the large model to create an entire new urban field at the base of the towers along the Dubai corridor. Each student also had two large panels illustrating their project in great detail, to be pinned up on the walls. This was the presentation mode used for the mid-semester critique as well.

We had another, more practical purpose in mind, which was to bring our students into working contact with more practicing architects, so that our students would have an automatic introduction to a firm from which they could ask employment upon graduation. So often, an architecture student graduates only to find they have no idea of how to move towards a job. Having spent all their years inside the cloistered world of the architecture school, some students are totally unfamiliar with the world of real architecture and the way it is practiced. For us as teachers of architecture, the idea of involving professional architects as jurors in our studio served the double goal of connecting our students with possible future employers. Towards this end, we set a date for our show, and invited several local architecture firms to attend (beyond the three that had participated as jurors). We also made arrangements to videotape the model and students projects so that we could send a CD to other institutions and to the government authorities in Dubai itself.

Unfortunately, at the last moment, we were not allowed to utilize the exhibit hall, though no other exhibit ever took place in that room, and the space remained empty. Our show never took place. Two days before the photographer was scheduled to document this work for the traveling exhibition, the students were informed by the administration that they had 24 hours to get their work out of the studio or it would be discarded. Since we never understood the reason for these actions, we are not in a position to interpret them. The incident is described here only to explain why we have no illustrations for this paper.

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