Design based on intelligence

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 comes a new model for building/rebuilding the world. The purposeful manipulation of the built environment engages humans in an essential manner through complex organized information. The direct neurological evaluations of surface, structure, pattern, texture, and form, etc. maintains our sense of wellbeing as 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 design based on intelligence and the information field. We outline 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.

**Design process, color, and texture**

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. But there was resistance. Students 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. They were instructed 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 1 in² swatches of color. The students did not believe us when we had told them of the tremendous emotional response to color, and that this 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 left for the actual design. To address a new educational model, the principles of architecture based on intelligence and the information field would need to be taught earlier and more effectively throughout the undergraduate curriculum.

The problem extends far beyond our class, however. When discussing these suggested new provisions in design education with our peers, we found that most of our colleagues were either unwilling or unable to debate the importance of such ideas. They showed themselves just as resistant as our students. 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 valid in a modern world.
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 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.

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!”

What we observed during this design studio reinforces 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 human beings every day, and which thus provides a greater sense of wellbeing. One problem that we face as educators is that so 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, an architecture that serves the rest of us in the buildings in which we live, has to connect us with the built environment in a meaningful and nourishing manner.