

DESIGN WITH THE SENSES AND FOR THE SENSES: AN ALTERNATIVE TEACHING MODEL FOR DESIGN STUDIO

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Abstract

In the 1990s, Juhani Pallasmaa wrote a compact, yet, eye-opening book expressing his growing concern about the architectural profession's waning ability to reference all the senses of the body in the design process. Bit by bit, the perceptive chasm between the architect and architecture was widening both in the design process and in the cognitive experience of existing architecture. More than a decade later, these concerns have heightened as the ramifications of this design divide appear in the form of architecture whose divorced virtual quality has spilled over from the design process into built reality. The illusion of virtual reality – as achieved by 3D simulation in all its glories – has pulled the architect into a zone of false confidence where he/she feels that the design has come to life before it is built and that every corner and detail can be simulated and therefore understood. But can it be touched, smelt, tasted or heard? In fact, is even what we see on the screen anywhere close to what we see as we move bodily through its spaces?

This phenomenon is addressed in a design studio run by the two authors of this paper. The purpose of the design studio, which is held in the Department of Architectural Engineering, of the Faculty of Engineering of the British University in Egypt, is to design a community centre linked to a place of worship within a residential compound currently under construction on the outskirts of Cairo. The graduating class of ten students is in the

final and fourth year of a program that emphasized the engineering and project management aspects of architecture at the expense of theory and history of art and architecture. The university has no humanities or liberal arts program as yet, and students have minimal contact to arts within the university system. Contact hours in design studios are limited and design is mostly computer-aided. The need to re-emphasize the physical, tactile, polemic and holistic aspects of the architectural design process is urgent, especially that this was the first graduating class of architecture in this young, privately owned university.

The design brief lent itself easily to the purpose of reinstating the body and the senses both as design tool and design purpose because of the dual iconic intimate nature of the place of worship in particular. Spirituality, although a transcendental out-of-body experience is stimulated and enhanced through physical rituals of sound, taste, smell, touch, and vision, and the design process is only successful if it constantly refers to the senses as tool and purpose.

The design studio re-instates the role of the senses in a number of ways. In addition to preparing a standard comparative report after field visits to local case-studies, students are asked to convey the effect of their case-study on one of the senses through a series of five conceptual installations each addressing one building and one sense. Installation

art in itself is a foreign concept to the students and in expressing themselves through an art form that uses holistic sensory stimuli to convey its ideas, students found themselves rethinking their own design process. Furthermore, the design is grounded in a real site that they were asked to visit and report on, and in a program that was arrived at democratically through brainstorming. Finally, designs are to be developed in a tactile physical manner through modeling and sketches. Traditional orthographic representation and computer aided design will be relegated from design tool to representational tool applied to the design after it is almost fully developed. Evaluation throughout the duration of the studio is not only transparent but focuses on the student's ability to palpably grasp and express ideas beyond graphics. As this is a studio-in-progress it remains to be seen the developments, effect and impact this approach will have on the graduating class and their final product.

Keywords

Design Studio, senses, installation, model-making.

Introduction

"It maybe that our unpoetic dwelling, its incapacity to take the measure, derives from a curious excess of frantic measuring and calculating." (Heidegger, 1997, p.118).

A good part of architectural education is consumed in teaching students how to represent a building; the concept behind it, its details, its structural system, its interiors, its exteriors. At the core of these tools of representation is the ability to convey through lines, in two dimensions what is, of course, a three dimensional product. It is a skill that is not easy to learn or to teach and it is an important component of almost all aspects of the architectural education process.

In the 1990s, Juhani Pallasmaa wrote a compact,

yet, eye-opening book expressing his growing concern about the architectural profession's waning ability to reference all the senses of the body in the design process. "The problems arise from the isolation of the eye outside its natural interaction with other sense modalities, and from the elimination and suppression of other senses, which increasingly reduce and restrict the experience of the world into the sphere of vision" (Pallasmaa, 2005, p.14). Bit by bit, the perceptible chasm between the architect and architecture was widening both in the design process and in the cognitive experience of existing architecture. More than a decade later, these concerns have heightened as the ramifications of this design divide appear in the form of an architecture whose divorced virtual quality has spilled over from the design process into built reality. Pallasmaa's book ostensibly champions the skin over the eye and called for an architecture that designed for a superior tactile experience, but in the process, it addresses all the senses. He, in fact, prefaces his book with quotes that poetically evoke how to experience life is to be constantly bombarded by an undistinguishable mix of sensory stimuli;

'The hands want to see, the eyes want to caress' (Goethe qtd. In Pallasmaa, 2005, p. 14)

'My perception is not a sum of visual, tactile and audible givens: I perceive in a total way with my whole being, which speaks to all my senses at once' (Merleau-Ponty, 1964, p.48).

The illusion of virtual reality, as achieved by 3D simulation in all its glories, has pulled the architect into a zone of false confidence where he/she feels that the design has come to life before it is built and that every corner and detail can be simulated and therefore understood. But can

it be touched, smelt, tasted or heard? In fact, is even what we see on the screen anywhere close to what we see as we move bodily through its spaces?

The idea that no representation of architecture (whether orthographic, perspective, or even virtual) can truly represent the space that we traverse, touch, feel, smell, is of course, not a new idea. Neither is the idea that as we learn the skill of architecture, our traditional ways of representing it can become a handicap. It is with these ideas in mind that the writers of this paper approached the task of co-teaching a design studio course to graduating students of architecture of the British University in Egypt. We were agreed on what we did not want to do, but still had a long way to go before deciding on what to do. We both had an aversion to computer-aided design and to the kinds of designs the students tended to produce when using it early in the design process. We had no objection to using it as a draughting tool, but wished to propose design processes that better addressed the sensory nature of architecture. We were also suspicious of the plan-section-elevation sequence of design (whether drawn by hand or the computer). While we were agreed that the physical motion of hand-draughting was preferable to the punching of keys and the minuscule movements of a mouse, we still felt that starting the design with orthographic representation limits spatial thinking, thereby handicapping the design early on. We were drawn to the idea of starting with scale models, then, after the concept is clear, progressing to orthographic drawings. The physical action of modelling emphasised the sensory over the virtual and was a constant reminder of Lefebvre's (1991) cry for texture not text. But at the back of our minds was a lingering doubt that while these

ideas were a step in the right direction, they were all within the same framework, the same measure, of architectural practice that reduces the bodily experience of architecture to a visual representation to be seen not sensed. We felt that there was another aspect to the design process that could get the students closer to the sensory understanding of their designs. This other aspect was 'more' than model-making.

In architectural education, ruled as it is by figures (both pictorial and numerical), conveying the idea of the body and how it moves between the walls and within the spaces of a building, is extremely difficult to teach. The phenomenological approach is complex, but it is our contention that it – or some approximation of it – has to be part of an architectural student's education. The next step was to find a way to introduce the students to a measure for architecture different from the measure they employ in their representation (and consequently) their understanding of architecture through drawing and/or model-making. Along his poetically meandering yet extremely evocative path towards the answer to his question about how Man can dwell poetically, Heidegger visits the meaning of measure and takes it beyond the limit of numbers. His reflections are on Hölderlin's poem which starts with the verse, Full of merit, yet poetically, Man dwells on this earth, and ends with the statement Is there a measure on this earth? There is none. To Heidegger, there is a measure, and the measure, if we are to dwell the earth not simply build on it and farm it, is poetry.

"Yet it strikes us as strange that Hölderlin thinks of poetry as a measuring. And rightly so, as long as we understand measuring only in the sense current for us. In this sense, by the use of

something known – measuring rods and their number- something unknown is stepped off and made known, and so confined within a quantity and order which can always be determined at a glance. Such measuring can vary with the type of apparatus employed. But who will guarantee that this customary kind of measuring, merely because it is common, touches the nature of measuring? When we hear of measure, we immediately think of number and imagine the two, measure and number, as quantitative. But the nature of measure is no more quantum than is the nature of number. True, we can reckon with numbers – but not with the nature of numbers” (Heidegger, 1997, p.116).

So, even though we ‘measure’ architecture by our images of it (drawings – photographs), how can we measure the nature of architecture? We have to, otherwise, we will produce spaces of unpoetic dwelling. Could it be that, as Heidegger (1997) asserts, “that our unpoetic dwelling, its incapacity to take the measure, derives from a curious excess of frantic measuring and calculating”?

Again, the quest to represent the un-representable, to measure the un-measurable has been a concern of the discipline of architecture for years. In a book of documents and manifestos provocatively entitled *The End of Architecture?*, Eric Owen Moss urges us to “find the measure the measure can’t measure” (Moss, 1993, p.62), while Coop Himmelblau describes their process of design and collaboration as a mix of drawing, model-making, verbal description and body language. They observe that the “more forcefully the designer experiences his design, the more vital the completed space” (Himmelblau, 1993, p. 18). The question still remains, how does one forcefully experience a design?

Frank and Lepori (2007), on the other hand, premise their book *Architecture from the Inside Out*, on the legitimate concern that the architectural profession is producing abstract, objective, un-engaged buildings that alienate and distance their user. They exhort us to create users’ spaces not spaces conceived as representations. According to Lefebvre, “a user’s space is lived – not represented (or conceived). When compared with the abstract space of the experts (architects, urbanists, planners), the space of the everyday activities of users is a concrete one.” Frank and Lepori refer to a number of architects and theorists who have expressed these concerns in a variety of ways. From psychologist Robert J. Sardello’s advocating the use of the language of adjectives rather than nouns for self-presentation, to Eileen Gray’s admonition to fellow architects not to conceive a house for the pleasure of the eye, rather for the comfort of its habitation, Frank and Lepori continue to guide their readers back to the human body as the original reference of architecture, its point of departure, as subject not object.

“Would you like to live there?”

Frank and Lepori (2007) also refer to a number of experiments in architectural education that aim at sidestepping the limitations of traditional representational methods in order to coerce the students into producing designs for users, for the body, designs made up of nouns not adjectives. From simply asking a student if they would like to live in their own design, to making students walk barefoot up and down many types of stairs and describe the sensation, to asking students to critique buildings and landscapes as receptacles of sound, smell and other sensations, these teaching methods are all attempts to free the

students of the necessary yet restraining tools of traditional representation that as their stock in trade, will be ever-present in their professional life as both boon and bane.

But how will students describe these sensations? What tools will they use if they are asked to forgo drawings and models? Will they say them? Write them? The question is, as Alice, of Wonderland fame, has previously asked Humpty Dumpty,

“whether you can make words mean so many things” (Lewis Carroll qtd. in Forty, 2000, p.9) . How can one use one skill that impacts one sense (talking – hearing / drawing - seeing) to convey the “polyphony of the senses” (Bachelard qtd. in Pallasmaa, 2005, p.41) of traversing through any space, let alone great architecture? It might be that the process needs to be inverted. Rather than target one sense to convey a myriad of senses, we needed to ask the students to isolate



Figure 1: Appropriation of the Design Studio. (Source: Authors).



Figure 2: Learning through Making. (Source: Authors).

one sense and convey it in a manner that impacts all the senses of the person on the receiving end. In other words, we arrived at the idea of asking students to describe how a building impacts one of the five senses and to do that through a genre of art that addresses a number of senses simultaneously, installation art. We hoped that this additional method of expression, installation art, would prove to be what we were looking for in addition to the model making in the design process.

Installation art has been used as a teaching tool in architecture design before, but not that we know of in Egypt, and certainly not within the curriculum of our department, a curriculum that gave far more weight to the engineering aspect (with emphasis on structure and project management) than the conceptual dimension of architecture. We felt that combined with the use of modeling as a design tool, this studio structure would be a perfect conduit for imparting with tacit knowledge or “learning by

doing rather than acquiring rules for doing” We would use exemplars (case studies) and models (both analytic and poetic, but with the emphasis on the poetic) to “learn how the subject acts by treating the model ‘as if’ it were the subject itself” (Zeisel, 2006, p.81).

In summary, the design studio, the purpose of which was to design a community centre annexed to a place of worship, was to re-instate the role of the senses in a number of ways. In addition to preparing a standard comparative report after field visits to local case-studies, students were to be asked to convey the effect of their case-study on one of the senses through a series of five conceptual installations each addressing one building and one sense. Furthermore, the design was to be grounded in a real site that they were asked to visit and report on, and in a program that was arrived at democratically through brainstorming. Finally, designs were developed in a tactile physical manner through modelling and sketches. Traditional orthographic representation and computer aided design was relegated from design tool to representational tool to be applied to the design after it was almost fully developed. Evaluation throughout the duration of the studio would be transparent and would focus on the student’s ability to palpably grasp and express ideas beyond graphics.

The Students – ‘We are the first group’

The British University in Egypt is a university without a humanities department and the department of Architecture is part of the Faculty of Engineering. The curriculum of the pilot cohort has shifted from project management and civil/structural emphasis towards a more design oriented focus but it is still lacking in sound conceptual

grounding. This group is the first graduating class with ten students.



Figure 3: Graduating Class 2010. (Source: Authors).

Project and Site – Sacred and the Suburb

This last design studio before their graduation project was a challenge in and of itself; it was an important opportunity to reinforce lessons of the design process with the added dimension of conceptualization and sensory understanding they had not been previously exposed to. The design brief was to design a religious space (with a choice of the denomination) with a community

center. The site was a new gated compound on the edge of Cairo in the design phase (residential community mainly comprised of neo-Mediterranean villas) with a large formation of petrified wood (Stone Park, the name sake) as the focal point of the site. This type of *carte blanche* site was deliberately chosen so that the students could be freed from the historic preconceptions, particularly prevalent in Egypt, associated with the design of places of worship.

Syllabus – Sensory Based Process

In designing a design studio to address the side of architecture these students had never been exposed to, we decided to begin with student analysis of local and international case studies (of similar types of buildings to their design brief), the selection of which we guided. Following this students were asked to visit the site and analyze it. Thus, fully immersed in the context and requirements of the design brief, we presented to them argument for architecture as sensory experience as proposed in 'The 'Eyes of the Skin'. We also introduced to them the ideas and examples of installation art as applied to the expression and understanding of architecture. Pivotal texts like Butterworth's taste analysis of the Barcelona Pavilion (Butterworth, p.18-25) pushed the students comfort zone and helped to re-orient them to a seemingly drastic new way of understanding buildings. With this, each group was asked to rethink their local example from the perspective of how it interacted with one of the five senses. Over six weeks, each group presented their installations– allowing for ample time for development and discussion. Students were simultaneously asked to model the site at 1:400, which had some topographic variation. Students then developed model schema for their program using variety of materials and were

guided to relate ordinance systems to structure their layout based on their conceptual and individual approach to the site. The final stage of the design studio was the documentation of their ideas and designs in drawing form. Students worked on translating their model ideas into plans, sections and elevations.

Although all aspects of the studio could be described in detail, it is the installation aspect that we felt was both unique and provocative in the design process. Upon completion of the studio, we reflected with the students about the process and this specific facet of installation design and found that although there were many particular benefits, there were also aspects that we as instructors could learn from – and fine tune - for subsequent inclusion of installation making in subsequent design studios.

Installations

In Detail

Students found the task daunting and confusing as they were used to expressing buildings through drawings, photos and words. This is how they knew how to analyse and design. We asked them to translate the ideas and understanding of one of their case study buildings into a bodily experience and to refer to conceptual and installation art as a genre. We found that we had to explain what this was, so we chose examples that addressed architecture and space including the work of Gordon Matta-Clarke and Christo. While we asked them to use their experience of the local example as a spring board, some groups chose to specifically do this and other were more general.

The first group had the sense of smell and the

group created a 'prayer box' out of cardboard. It was barely the dimensions of a single person praying and was oriented towards Mecca. The prayer box was completely dark with perfumed white powder and rocks inscribing a prayer niche on the floor. After entering the box a small purple florescent light was turned on.

The second installation was one person who was addressing the sense of sound and chose to simply play a recording of the commercially available 'Ameno' by Era, and asked the class to sit and shut their eyes and imagine a church.

The third group presented their interpretation of taste of a local church from the early 20th century. They used a double structure, where the interior was made of Styrofoam sheets and the exterior was composed of cardboard sheets at a person's height and was held up by an arrangement of drawing tables and chairs. People entered the space via a bent unlit corridor that shifted direction and emphasis to reveal a small white soft space. On entering one found oneself ankle deep in cotton wool and enclosed within walls covered in cotton wool and a cascading ceiling of what one comes to realise is white cotton candy.

The fourth installation was based on vision and was made by one student. The student magnified the visual aspect of the Muslim rosary by making it at a large scale out of plastic jars with stencil spray of religious words. This was lit from inside (highlighting the stencilled text) echoing the local traditional lantern (fanus) used during holy month of Ramadan.

The fifth installation also addressed vision and was a model of the ovoid form of the mosque that they had chosen as case study. They used

hundreds of Dixie cups stapled together to generate the shape and created the minaret bases out of water cooler containers; one filled with dark fluid and the other with red fluid. These fluids alluded to the main activities held in the mosque which were not prayers but gatherings for condolence (black coffee is served) and for weddings (red sherbet is served). The rest of the minarets were then formed out of Dixie cups.

The sixth and final installation was meant to address the sense of touch but evoked a mix of all of the senses. As well, this installation included materials and elements of the earlier installations in an attempt to both summarize the senses/installations and to evoke 'touch' with any actual touching. We were asked to enter the room in line with our eyes closed, with each person's hand on the previous person's shoulder. Incense was burned, alluding to the smell installation. We were then seated in front of two screens made of the Styrofoam (from the taste installation) and served water in the Dixie cups of the previous installation. A video montage of various images meant to evoke the history of Islam as recounted in the religious lessons held in the case-study mosque were shown synchronized on the two screens.

As we mentioned previously, the inclusion of installation design was a unique addition to the architecture design process, especially in this university. The students' response in general was beyond our expectations, with moments of revelation for all of us regarding the senses and architecture. Our students benefited from many aspects of the installation design process including: process of making and materials, understanding the physical qualities of space, and engaging a larger forum of response and

criticism beyond their small circle of class and professors.

Lessons of Making and of Materials

“Our most sacred convictions, the unchanging elements in our supreme values, are judgments of our muscles’ (Nietzsche, 1967, p.173).

The first lesson of installation making involved bringing the student back to primal actions of making with their hands. The ‘real’ properties of materials, their textures, ability to stretch, stand, support, transmit light and so forth became part of the design process for the students. While each student had a preliminary idea of what they wanted in their installation, modifications were made while making, often with improvisations and unexpected solutions. In recognizing the inherent physical properties of materials and manipulating these materials for the desired effect the students learned many unspoken lessons. The students’ choice of material itself was also surprising. It was expected by the instructors that the students would search and find large scale ‘architectural’ materials like plywood, or aluminum but all of the students created their installations from large scale material sources similar to their model making materials including cardboard, Styrofoam, cloth etc.

“The skin reads the texture, weight, density and temperature of matter... The tactile sense connects us with time and tradition: through impressions of touch we shake the hands of countless generations...” (Pallasmaa, 2005, p.56).

Of the six installations, three used packaging cardboard to create their installations, although

very differently, successively expanding from box enclosure to larger space occupation. The first installation, ‘Sound’, used the packing cardboard literally as a box similar to its original shape. The ‘Taste’, installation used cardboard to create an inner sanctum within a larger framework of haphazardly placed Styrofoam which had formed a transitional space. The final installation, ‘Touch’, took over the whole studio, using cardboard to cover the windows, and along with Styrofoam, to form the display panels for the video projection.

The ‘Smell’ installation also used perfumed stones and powder to inscribe the prayer niche (mihrab) on the floor within the box. Criticism of the project pointed out that the installation may have been more engaging had the user been asked to remove their shoes and if the place had been dark, so that the act of prostration may make the user “see” the mihrab through smelling the rocks and powder on the ground.

The ‘Taste’ installation learned from the lessons of the ‘Smell’ installation, by attaching a bent entrance (majaz) of Styrofoam to the cardboard sanctum. The only criticism was that the ‘construction’ of the Styrofoam and cardboard need a designed structural system of support, rather than just being held up by class furniture. The creative use of cotton wool and cotton candy within the final space, along with the opening in the ceiling allowing in light, proved to be an enjoyable surprise for all of the class. The students immediately wanted to touch, sit in and eat the installation. The creators wanted to simulate the comfortable feeling they had felt in the space of the local church they had studied. For the instructors, the space seemed to trigger images of the heavenly copula in renaissance

churches that were covered in frescoes of cherubs in the clouds.

One installation did not use any materials ('Sound') and two installations used common, non-architectural, materials (jars and cups) to create their installations.

The two 'Vision' installations each used one repeated element. The first 'Vision' installation, that of the Muslim rosary, involved the creative use of painted plastic (pickling) jars, that were painted, lit up and strung tighter. The proportions of the round jars and the cylindrical tops that allowed for simple connections to each other, effectively mimicked the geometries common to many rosaries. But because this installation did not create/ re-create any kind of space the student was asked to reconsider the context of the piece, which was initially hung in the studio, so the piece could be seen as an extension of, or reaction against architectural spaces on campus.

The second 'Vision' installation, the dome made of Dixie cups, proved that the use of a common, non-architectural material, could teach invaluable lessons of design and structure. The oblong dome of the Cairo mosque they had studied was recreated with this repeated element. What was gained was the important lesson that the case study dome was essentially poor in aesthetic because it was built using a structural system that showed no clear logic. On the other hand, the repeated units of the installation allowed for an immediate aesthetic and logical structuring of such a large curvilinear form. Furthermore, the fluidity of the connection (using staples on the edges of the cups) encouraged the students to engage the piece

by going underneath it and move it, creating other organic shapes that were both aesthetic and structural. The students also used long bolts of cloth to demarcate their section of the studio and to allow for a moment of revelation of their dome.

Understanding the Physical Qualities of Space - Real and Imagined

"Our bodily felt sense of being in the world... thinking needs to learn by feeling and the need to quiet the conceptualizing mind in order to listen to the body's own speech, its own logos' (Levin, 1985, p. 233)

The second lesson of making the installations was the ability to select and grasp the existing qualities of the space which will house the installation and learn to play off of it to recreate their imagined space. So by engaging real space constraints, opportunities for imagined and different spaces were possible.

Two of the installations, both which had used packing cardboard, essentially created boxes within their space. Again, the singular installation that did not use materials, did not engage the space. One installation engaged the entire context of the university by being relocated several times to different places on the campus. Two of the installations engaged part or all of the space of the studio by making modifications that affected the entire room.

As with the expansion of the use of simple materials so too did the installations expand with the amount of space they occupied, changed or affected. Beginning with the 'box' of the 'Smell' installation, and the other cardboard board

based installation of 'Taste' which not only grew to occupy more of the studio but also modified the space with the double structure and the created transition space from outside (studio) to inside (cotton inner sanctum). The majaz forced the users to change their posture (bend down, because it was lower than standing height) and allowed time for the eyes to adjust to the dimness of space, and to 'feel around' to move within the haphazard corridor. This was an intuitive lesson as well about the architectural importance of allowing for and creating transition spaces that were integral to traditional places of worship. The 'Vision' installation of the Muslim rosary was relocated several times around campus, first in the studio, then in the entrance atrium of the main building which is used mostly by the entire Faculty of Engineering. Many assumed it was a version of the decorative lantern left over from Ramadan. Its effect on the space was minimal but it did garner some attention and forced people to look up to the upper floor of the atrium where they normally would not have. On the next day it was moved to a south facing balcony looking onto the main student outdoor area. In the bright sunlight, and at a distance it began to look like Christmas decorations on the building! On the third day (and where it remained until the end of the semester) it was hung on a connecting bridge between two buildings.

The second 'Vision' installation and the 'Touch' installation modified the studio itself for complete effect of their installations. The Dixie-cup dome was screened off from the rest of the room with a curtain structure hanging from the ceiling. The 'Touch' installation, modified the room by covering the nine large windows with black cardboard. Through modifying and occupying the space, the students took ownership of the

studio and other classes scheduled to use it were moved to other locations.



Figure 4: The two 'Vision' Installations. (Source: Authors).

Engaging a Larger Architecture Community

".. simulations can have heuristic value... students can simulate experiences of design with the understanding that.. the experience itself constitutes a worthwhile 'outcome'. Full size mock-ups of student designs are one example" (Wang, 2002 , p.290).



Figure 5: The Cascading Cotton-Candy Ceiling of the 'Taste' Installation. (Source: Authors).



Figure 6: The Taste of Architecture. (Source: Authors).



Figure 7: Emerging from the Mihrab Box of the 'Smell' Installation. (Source: Authors).



Figure 8: Inside the Dixie Cup Dome of the 'Vision' Installation. (Source: Authors).

Engaging the larger architecture community of the university is mostly done by way of annual shows of (best) student work. Rarely do classes interact, either with each other or with instructors

that do not directly teach them. Part of the issue is policy related. Each year does not have a studio dedicated to them. Rather, the same studios are used as classrooms for students in

other courses. Students do not have a studio that they feel they own and the nuclei of 'habitation' common in many architecture schools do not exist, and as such, there is not a sense of physical belonging and community. One happy by-product of the students in-studio installation making and display was that the other classes scheduled to take place in this studio were transferred to other rooms and the studio began to 'belong' to the students. This encouraged architecture students and instructors to come by throughout the day and discuss the installations. The students benefitted greatly from having their work exposed to a larger audience of peers and instructors – gaining a variety of feedback to help them understand the problems and questions they had posed with their installations.

Two of the installations were very time based and only occurred once, for the class, and thus did not gain feedback beyond the class. The 'sound' installation with the recording playing as well as the video display of the 'touch' installation were very temporal, and both garnered the attention of only the class and faculty directly involved. Three of the installations engaged the studio in some way or another and were on display for a number of days were the 'Smell' box installation, the 'Taste' cotton installation and the 'Vision' Dixie-cup dome installation. Because they took several days to construct and were on display for days afterward, it allowed for continuous visits – and help and feedback - from students and staff. The one installation that moved from the studio (Muslim rosary) and was located in different parts of the campus, garnered the attention and commentary not only from architecture students and instructors but from a much larger audience of the university. Despite the exposure, the installation itself was not clearly

architectural in nature, the way it affected the spaces and viewers was not entirely clear – even to the author of the installation herself.

Lessons Learnt: Student Feedback

After the final installation, a round table discussion was held in which students were invited to critique the process and reflect on what they learned from it and how it applied to the design process. Most were agreed that it made them more aware of the multi-sensory experience of architecture and more careful in choice of material, design of light and acoustics. In the process, they came to experience buildings in a more conscious manner and to register how their bodies reacted to them.

On a more specific level, some of them expressed the idea that parts of architecture could take on the qualities of installation art. They were inspired by the empowerment they experienced when invited to modify their space and wanted to encourage the user of buildings they design to do the same. For example, one student wished to include a wall for graffiti in her design. The wall would double as a backdrop for a water fall that would wash the graffiti away to make room for more self expression from the user. They felt that in including these types of spaces, architecture would engage the user more, making him a more pro-active user – a shaper rather than a receiver.

One final comment was made by one of the designers of the cotton candy 'Taste' installation. He was struck by the reactions and interpretations of the users of his installation. He felt that, while some of the aspects of his concept and ideas were grasped intuitively by the users, others

were not. They were, however, replaced by other ideas and interpretations that the users projected on his design. His bemusement soon turned into revelation when he realized that these alternative readings added value to his original design. His conclusion was that while the user will not necessarily grasp the conceptual intentions of the designer, it is still the latter's responsibility to make the designed as nuanced and multi-valent as possible. In doing so, he/she creates a space that provokes the user into weaving his own stories and interpretations. In re-conceptualizing the building, the user takes ownership of it and perpetuates it through the layering of meaning.

Impact on Design Studio

The most frustrating part of the exercise was the immediate impact on the architectural designs they produced for project. Most of the insights the students said they gained, and the ideas they expressed did not translate into inspired design. While both student and staff who had taught them before said that they had improved as architects, the instructors were disappointed by the level of the final designs.

This anti-climax was due to a number of factors. The nature of these kinds of exercises is accumulative in the sense that it has to be repeated, fine-tuned and built on for it to be effective. It was therefore optimistic to expect and immediate result within a 12 week semester.

Another problem was related to the difficulty of reconciling time constraints with intended learning objectives. A community centre was added to the brief so that complexity of the project better suited the expected the fourth year design studio intended learning outcomes.

The result was a project that gave more weight to the spatial urban organization of the different buildings, limiting time for in-depth design of the place of worship. This was counterproductive because by virtue of its spiritual character and the sensory nature of the rites and rituals that take place in the place of worship which would have benefited the most from the lessons gained from the sensory installations.

As well, the reality was that this was a pilot group that had been subjected to quite a few curriculum changes, and that it was a small group of varied talents and vocational skills. They had not reached the level of proficiency in architectural representation and were still developing their skills to the extent that they could adequately express the innovative design ideas that had been inspired by the alternative teaching method. On the other hand, this naiveté was probably a contributing factor to the fine results they produced in the hands-on exercises.

Conclusion: Lessons Learned

In planning a design studio that addresses the sensory nature of architecture one has to employ alternative methods of instruction that break free from Cartesian geometry and deal with design in a more phenomenological manner. This can be done through enhancing the physical process of design and concentrating on the three dimensional aspect of the building through model-making. Another, more alternative and complementary process, is to forgo all forms of architectural representation and use installation art as a form of expression that addresses the user in a more bodily manner. This method was employed in fourth year architectural design

studio in the British University in Egypt. The impact on general advancement and architectural awareness was extremely gratifying, with students engaging in the process in a creative manner, learning from each other, engaging students from other classes, and responding with insightful and thoughtful feedback that. Students expressed a more heightened awareness of the effect of architecture on the senses and felt more in tune with the user and his/her rights as future physical and conceptual owner of the buildings they design. Immediate impact on design studio was more problematic, as these kinds of exercises tend to be accumulative and their results more long-term. It was therefore felt that the level of sophistication needed to translate insight gained into design application had been under-estimated by the instructors. The instructors needed to gauge the varied levels of skills and talents early on in the course so that the time allotted for the design process was appropriate. As well, the design brief needed to target one building in a more in-depth manner rather than deal with an ensemble on a macro level. While the exercise was fruitful and will be repeated by the instructors, it will involve more hands-on training for the students to help them translate insight into design application, possibly making the process come full circle through asking them to include an installation component in their final representations of their own designs.

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