Semiotics as a Guide For Architectural Formation

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Introduction

Built environments are intentionally designed to host activities. These activities define the place functionally while manifesting its spatial, social and cultural character (Ferwati 2010). Lewis Mumford’s fundamental arguing that: in the state of building at any period one may discover, in legible script, the complicated processes and changes that are taking place within civilization itself (cited in Carmona and Tiesdell 2007, p. 116). Hence, buildings are not simple objects, but also convey messages about the usage and the user (Uexkull, 1957, Krampen 1979). Moreover, the perception of objects goes beyond functional utility to expression, meaning, and symbolic dimension (Gotttidiener, 1963; Broadbent. et. al., 1980; Eco 1976).

For Bjorklund (1983) the built environment is a result of the user’s spatial behavior and so collectively reflects the societal image of the urban milieu. In brief, just like a written script, the build environment consists of signs with which one can interact (Greimas 1990). A person should be able to interact with his environment and comprehend its function and symbolic meanings, in the process enabling user experiences and satisfaction (Ferwati 2010). Semiotics is the study of signs and symbols. “It includes the study of how meaning is constructed and understood”.¹

In light of this introduction, semiotics application stands as a significant guide for architectural formation. It helps embed and communicate a clear message within local and global conventions of cultural communication. The premise of this paper is that a good design concept is a necessary requirement for generating designs with clear cultural meanings and communication. The objective of this paper is to explore key examples of design with clear message and communication as a means of relating design concept to meaning and communication of designed products, and also to examine products of a first year design studio undertaken at Qatar university to see how semiotics application has informed concept and design product message and communication. Fig.1 shows the process of concept-based design that can be applied at both professional and the educational levels. The first part of the paper examines selected key examples of design from around the world to understand the relationship between concept, message and communication in design. The second part examines design project undertaken by first year female students at Qatar University with focus on application of concept-based design and semiotics.

![Diagram](Author)

**Fig. 1.** The process of contemporary concept-based design.

**Design Concepts in Contemporary Architecture**

Architecture embeds a spirit of place that people experience. This is even true when the concept-based design is the dominant motive for materializing the imaginary world. It could be considered as an approach to experience time, mysterious places, and even fictional places. The concept of a mysterious or fictional architecture was practiced in ancient history as the case of the Great Pyramid of Giza in Egyptian. The ancient Egyptians’ believed in life after death that expressed their ritual life. It also constitute the cultural message that was conceptualized and embedded in their architecture of pyramids. The prominent pyramid were those built for royal families. The conceptual approach to the pyramids was that the soul frequently ascended and descended following the experience of death. This was symbolized in the pyramid form with its base as firm ground and its summit pointed high to the sky as a symbol of ascension and a link between the grave on the ground and God in the sky. ²
In modern architecture, cultural messages have variety of conceptual trends such as commercialism, expressionist and iconic. The case of commercialism and distinctiveness is evidence in the skyscrapers that dominate the sky lines of Chicago and New York. Notre Dame du Huit Church designed by Le Corbusier in 1954 is an example that has semiotic dimension related to expressionist architecture. It represents feeling on the subconscious mind. The expressionistic feel was achieved with the irregular set of windows and the curved form of the wall and roof. There are other cases that follow semiotic dimensions but rather with iconic forms. For examples in 1959 Frank Lloyd Wright designed Guggenheim Museum signifying the rose form, in 1960 Eero Saarinen designed J. F. Kennedy Airport signifying the soaring birds, and in 1973 Jorn Utzon designed Sydney Opera House signifying the boats sails. The semiotic dimension of these examples have been extended to the global level. Concept driven modern architecture, whether based on iconic, expressionist concepts or else, gives beholders the feeling of enlightenment and wonderful amusement. Additionally, it has the ability to impact the mental image of the townscape (Lynch 1960).

There are differences between conceptual approach of ancient architecture and modern architecture. Ancient architecture mainly denotes believes, power of rulers, victories, defense, prosperity, luxury, and social status. On the other hand, 20th century modern movement in architecture marked the beginning of the liberation of the normative and traditional paradigm. The modern townscape demonstrates the need for democratic built form, that breaks away from the classical design school. According to Robert Stern, modern architecture signifies the concept of modernism. “Modernism, in the most oversimplified term, represents a moralistic application of a superior value to that which is not only new but also independent of all previous production.” (cited in Papadakis and Steele 1991, p. 15). This definition legitimizes the application of modern architecture.

By 1960, there was dissatisfaction with result of modern architecture, which led to the evolution of post-modernism with its emphasis on both international trends and local or regional architecture. Contemporary architecture has emerged as a response to recent global advancements in the fields of technology, digital communication, biology and ethics. Contemporary architecture emerges as a new architectural style that intentionally goes beyond form to embrace unlimited imaginative design concepts. For example, the works of Coop Himmelblau project, ‘musée des confluences’ conceptualized as a “cloud of knowledge” blurring divisions between subject areas and focusing on the society of the future urban leisure space.” Additionally, when the architectural design, as a local product, connotes global approach, it becomes a manifestation of contemporary architectural designs. As it will be shown in the following section, this approach is not restricted to amalgame conventional designs with fictional and mythical designs. According to Free Dictionary’s, mythical place is “a place that exists only in imagination; a place said to exist in fictional or religious writings”. Contemporary design tends to make the impossible possible. It attempts to transfer personal mental image to experience one of the following three aspects: the early traditional environment, the past within the present, or mental transformation from real life to an imaginative world in a philosophical model. There are different categories of architectural design concepts that legitimate the existence of these contemporary architectures. When applying such concepts, the architect in fact denotes a semiotic label to his design. Today, design concepts are responsible for the creation of three noteworthy trends. I. Design preserves the heritage. II Design presents a totally new style within a traditional one. III. Design presents a totally new style. It is also possible to combine The three types.

I. Present vs. Traditional Environment:

The study of significant contemporary architecture, such as museum, indicates that their essential role is in the enhancement of the image of the city while, at the same time, maintaining a certain identity and message to the public. When a design concept brings to existence a traditional and historical style, it is considered as an attempt to fantasize life by experiencing tales from the past, a story after another about the history of the place, the former users and the society. Here, users experience conceptual transfer in time and place. We have two examples: one is the restoration of an existing house and the other is a new vernacular style building.

1. Traditional Residence. The house of Marjorie Merriweather Post in Washington, D.C., USA. Represent a case of an architectural idiosyncratic residence where the former users had conspicuous position in the society. Here the landscape and the building are cheerful and too valuable to miss (Chung, 1913). Living in such place is like living in the past.

2. Neo-Vernacular Architecture, the case of the Museum of Islamic Art, Doha, Qatar designed by the star architect, I. M. Pei. His design concept tends to
show the significance of regional architecture (Rabbat, 2011). The building follows neo-vernacular design to reveal the identity of the region in modern semantic. Watching the building from outside is just like traveling on the magic carpet of Aladdin over the past in a contemporary facet. With its prominent form, the designer succeeded in the site selection. MIA is loaded with meanings, semiotic production and communicative possibilities (Ferwati, 2013). The building colors the urban scenery and becomes inseparable from the townscape and the city image.

II. Contemporary Architecture Accompanies Traditional

The case of the Castelvecchio Museum in Verona, Italy is an example where new additions added a significantly new meaning. Two addition were made; the first addition is a small section that is attached to the building and open to the garden. The second addition was the landscape of the garden by Peter Eisenman. The star architect contributed a deconstructive design element to the landscape of the museum, entitled “Il giardino dei passi perduti” (“The garden of the lost steps”) (Marsilio, 2004). This addition creates a magic link between inside and outside. Eisenman’s work is meant to provide outdoor fictional elements that lure the visitors who are interested in contemporary design. The observation of such element goes deep into the imaginative mind attempting to figure out its referents. This experience creates both spatial amusement and enlightening entertainment. Fig. 2.

III. Transformation from Reality to an Imaginative and Mysterious World.

Two cases are presented in this section where cosmic iconicity as a contemporary trend in museum design is the motive to bring global attention. Global iconicity is a current architectural trend (Karp et al., 2007, Saltzman, 2013). It offers an amazing and entertaining experience. An example is the Las Vegas Strip, with its street of lights, excitement, and dreams (Steele, 1997). Each space does not only have to compete with other spaces, but also to lure and keep visitors.

Fig. 2. Castelvecchio Museum in Verona, Italy and the landscape installation art by Peter Eisenman.

The street of the city has become a place of active experience that promotes future developments; a restaurant, a square, and an airport can be viewed as a global experience rather than a non-place one. What is of interest is not the place but the experience that is generated (Grodach, 2011). Two examples are examined to illustrate this trend; the National Museum of Qatar and the Art Museum Strongoli.

1. National Museum of Qatar (NMQ): The newly built museum represents an urban building that stands as a prominent element in the townscape. (Fig. 3) “The National Museum of Qatar, like a desert rose, appears to grow out of the ground and be one with it” (Nouvel, 2010). It requires no natural element to signify its existence. Jean Nouvel, as a star architect chosen to design building. For QNM, the name of Jean Nouvel was meant to lure new audience to the site, both local and global. Here the conception of the client is different from that of the designer, and similar cases are found around the world; in 1977, both architects Richard Rogers and Renzo Piano designed the Center Pompidou in Paris, France (Futagawa, 1977) and in 2011, Frank Gehry’s design of Guggenheim Bilbao, Spain (Bruggen and Gehry, 1999). The process of seeking iconicity, by designers and clients, is a way of promoting the use of design products for both economic development and urban revitalization (Grodach, 2011). Additionally, the iconic museum signifies new meanings to urban space while at the same time reaching out to a variety of new audiences.
In the example given above, landscape is no longer a clearly identifiable spatial open space, but a transformed place that serves as a media field, a collection of artificial images instead of natural ones. The landscape design is continuously reorganizing itself as a complex system which, as an open space, incorporates local and imported flows of communication. Within this framework, communications is the underlying element of new form of landscape and its relationship to the museum. It is a new image in a new place created as a consequence of design.

2. Art Museum Strongoli: The new Art Museum Strongoli in Calabria by Coop Himmelblau: This museum takes place on the top of Motta Grande in Calabria, Italy, viewable from the city on a hilltop.8 (Fig. 4) The location legibly contributes to the eminence of the building. The landscape setting stands with its factual and natural layout for rather easy pronouncement of the serenity and colossal appearance of the building. The concept is titled ‘Seeing by Walking’. In Himmelblau words, “Our concept of ‘Seeing by Walking’ goes back to Aristotle’s School of Philosophy, which involved strolling on roofed walkways while thinking and lecturing. The idea behind this is that the mind is stimulated when the body is moving. Likewise, perception is stimulated through changes in the environment of light, material and climate while moving through a sequence of differentiated spaces.” And he added, “This sculptural merging of forms is enveloped by a curved outer skin that has been designed by energy transforming parameters driven by wind and sun. The aim of our proposal is to design a building that generates more energy than the building itself is using.” (Himmelblau, 2013) Furthermore, one may experience the place from outside the museum enjoying both the natural hilly landscape and the fantasía of the figurative buildings 9

Fig. 3. A top view of QNM. By Jean Nouvel.

Fig. 4. Top and side views of the Art Museum Strongoli. The surrounding is an open landscape. By Coop Himmelblau, 2013.

Productions of Forms Based on Concepts

Teaching methods for architectural design studios vary (Salama 2009); and the most important ones are those that focus on problem solving aspects and encourage students to play an active role in the educational process. In this context, as an attempt to highlight the effectiveness of concept-based design in the first year design studio at the University of Qatar, I approach it from the perspective that a good design concept is an essential requirement for the production of a good design product. A good design is one that has a clear and strong concept with roots in cultural meaning, and that is translated into form with encoded meaning and that can be verbally or textually articulated.

Method of the Study

The experiment is based on a studio exercise. The studio is a beginning studio focused on exploration and application of design principles. Students were asked to create compositions that are meaningful and embed cultural ideas and message. Lectures and workshops were given to explore the concept of semiotics and how it influences concept making. The exercise used for this particular experiment involved making a composition from 20 cubes of 5cm. Focus is on formal composition without attention to function.

The cube could be repeated, curved, projected, recessed, hollowed, or tilted as required. Adornment is not allowable. A base of 30 X 30 cm with a drawn grid of 5 cm cell dimension made it possible to guide the cubes’ placement. The students introduced 6 design concepts categorized under 6 topics: built environment, nature, symbolic/ fictional / mysterious connotations, events / activities / social aspects, abstract form, and scientific reality.

Results of the Study

The table below summarizes the 23 participants’ various concepts with the application of the design principles used by each student. Progressively, students worked on building models expressing their design
What Would Utzon Do?

### SYDNEY AUSTRALIA

#### FOURTH INTERNATIONAL UTZON SYMPOSIUM – SYDNEY AUSTRALIA

**WHAT WOULD UTZON DO NOW?**

<table>
<thead>
<tr>
<th>Categories and %</th>
<th>Design Concepts/Metaphors</th>
<th>Design Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self</strong> 13%</td>
<td>an individual's social circle</td>
<td>linear</td>
</tr>
<tr>
<td></td>
<td>special and unique personality</td>
<td>central, linear, cluster</td>
</tr>
<tr>
<td></td>
<td>feeling of bonding, reflection of the personality</td>
<td>circular, cluster</td>
</tr>
<tr>
<td><strong>Nature</strong> 13%</td>
<td>singing sand dunes</td>
<td>Hierarchy, nesting</td>
</tr>
<tr>
<td></td>
<td>shape of the grapes</td>
<td>cluster</td>
</tr>
<tr>
<td></td>
<td>landscape of the shore</td>
<td>cluster, curvy linear</td>
</tr>
<tr>
<td><strong>built environment</strong> 26%</td>
<td>closed wall with opened central place</td>
<td>nesting, grid</td>
</tr>
<tr>
<td></td>
<td>a reflection of the external design of the Museum of Islamic Art Qatar</td>
<td>Cluster, broken symmetry, rhythm</td>
</tr>
<tr>
<td></td>
<td>urban development of the Middle East (tents, mud houses, towers apartments)</td>
<td>cluster, balance, rhythm, illusive symmetry</td>
</tr>
<tr>
<td><strong>symbol / fiction / mystery</strong> 21.7%</td>
<td>the soul's journey after death</td>
<td>transformation, contrast, rhythm, curvilinear</td>
</tr>
<tr>
<td></td>
<td>moon and star</td>
<td>circular, rhythm</td>
</tr>
<tr>
<td></td>
<td>the Islamic symbol of the crescent moon and the star, societal unity, spirit rise</td>
<td>Circular, hierarchy, rhythm (motion)</td>
</tr>
<tr>
<td><strong>events/activities/social aspects</strong> 13%</td>
<td>Merging the present and the future, lack of the clarity</td>
<td>nesting, cluster</td>
</tr>
<tr>
<td></td>
<td>architecture is a frozen music, a reflection of an ice dancing skater</td>
<td>circular, rhythm (motion)</td>
</tr>
<tr>
<td><strong>Abstract</strong> 4.3%</td>
<td>the social order of a king's real life situations</td>
<td>cluster, balance, harmony</td>
</tr>
<tr>
<td></td>
<td>Qatar world cup event in 2022, inspired by the pattern of the football</td>
<td>rhythm, center</td>
</tr>
<tr>
<td></td>
<td>amusement and playgrounds carousel swings</td>
<td>circular, symmetry, radial</td>
</tr>
<tr>
<td><strong>Science</strong> 8.7%</td>
<td>design principles</td>
<td>circular</td>
</tr>
<tr>
<td></td>
<td>rocket shape</td>
<td>symmetry, radial</td>
</tr>
<tr>
<td></td>
<td>a meteor in space facing the earth</td>
<td>curvy linear</td>
</tr>
</tbody>
</table>

The important finding is that 26 percent of the students used built environmental ideas and 21.7 percent used symbolic / fictional / mysterious concepts. The lowest number, 4.3 and 8.7 percent, went respectively to the abstract and scientific concepts. Despite the fact that sustainability and green architecture kept recurring as an idea, only 13 percent of the students took their design models from nature. Social events also received attention of 13 percent of the total students, as if such category is a guaranteed aspect of their social life. It is worthwhile to mention that the students are local Qatari and expatriate of various countries. Finally, representation of self in the design is an interesting choice that reflects the personality or inner-self situation. I found out later that one of the 3 students who selected this category had a heart surgery 3 years back and she considered life as full of ups and downs that she hopes would strengthen her.

Usually, design concepts are embodied by design principles that are divided into formal and spatial organization principles and architectural ordering principles (Ching, 1996). The students applied 7 frequently design organizational principles. Four of which are cluster (24%), central / nested (18%), circular (15%), and linear / curvilinear (12%) stand as the mostly popular among students. While rhythm, harmony, balance, hierarchy, contrast, transformation, and proportions all are the design architectural principles (that italicized in the previous table) that commonly referred to by the students to express details of their concept and to bring out a good composition.

Three examples of the students’ designs are examined to illustrate their concepts: a scientific reality, a mysterious prospect, and self.

In the first example, the student’s design concept came from a meteor taking its course towards the earth. She started the design with a quick 2D sketch then, translated it to the final composition of 3D. The distribution of the cube elements linked with irregularity through two central elements to signify meteor and earth. For meteor the arranged cubes express the movement in space. According to the student, “I have been trying to express that through the development of components of meteor in a dense components at the head with the rest of the body relaxed, while the earth was epitomized in the lower corner through a conglomerate consisting of three cubes elements as a physical expression of the diversity.
of the earth and its usual topography.” This conglomeration came to express the earth to illustrate the space dimension from the moving as we see it from space; the observer is close to the meteor.

In the second example, the student titled her concept, “The Journey of the Soul after Death.” To embody this metaphysical concept, she distributed her cubic elements in central and circular patterns. The final shape of the design had three clear stages. She named the first stage “Moments of Death”. At this stage, the individual interact with his families, friends and those who are around him unaware of his forthcoming death because of the preoccupation with worldly matters.

Cubes arranged in an ascending irregularity as an expression of the linearity of life-time that which is fluctuated between happiness and sadness. The second stage titled “What after Death and Burial”. The day of reckoning comes and people go through the Straight Path. People whether poor or rich, doomed or strong, male or female, old or young, black or white all will pass this stage. No exception for any one, she said, “and that’s why I choose to arrange the cubes in the middle level, without ups or down form. Everyone is equal before God”. Third stage titled “The Judgment Day”, immediately follows the second stage. It has been divided into two paths: one refer to paradise. It was expressed by set of nested cubes ascending to the right. This path will be climbed up by people with good deed to different ranks. In the Hereafter, some ends in the top paradise. The second path, which consists of a set of cubes overlapping heading down to the left in an exact opposite direction to the first path. This path accommodates the soul of lost souls, who are on the path to hell. The 3D layout came with a cohesive design where the second stage has linked both the first and the third stages in geometrical balance despite the adoption of two different essential design principles; repetition emphasizing the transformation of design elements and contrast among the three different stages.

In the third example, the student chose her design concept to express a side of her personality. Through a winding line, the project occupied three corners of the model base while embracing a small free standing composition at the fourth corner. The final design showed a wave start moving from the bottom upwards and then downwards. The overlap of the cubs gives the physical components a sense of cohesion. According to the student: “This reflects one part of my personality.” The presence of cubic space frame at the top of the wave suggests vitality. Also this cube constitutes a spatial point and attractive visual mark. Regarding the small set of free standing composition, it stands like a puzzle that lures the beholder to think and seek solution to it. She said, “and this gives me a sense of mystery, which reflects another corner of my personality” or she said “and that is reflecting on my personality.” I am not sure what she exactly said, but both statements are worthwhile considering the disparity between the puzzle and her saying. She ended up saying, “I have developed the design in a diagonal symmetry with empty spaces on the periphery for the composition to breathe just as human needs for air.”
It is notable that all students choose different design concepts from one another. They collectively agreed that the design outcome presented a solo form related to semiotic concepts. This fact were behind the production of various 23 solutions, an equal number to the participated students. The diversity in designs demonstrates three inferences. First, the intellectual creativity has no boundaries. Second, of the 23 ideas generated in the studio all are different indicating the potential of the unique individual creativity. Third, the exercise supports the assertion that the participating students have the ability to formulate meaningful concepts and create form and design products out of their heritage and civilization, in a way that mimics contemporary forms with elegance that is global in nature.

Not forgetting to question the possible functionality of these designs, some students believed their designs can serve as a residential vicinity, commercial buildings, or even an institutional complex; while others saw that they had at hand diverse monuments that were artistically suitable to erect in public squares and parks or even to place in front of governmental institutions, especially those designs which embraces ideas that fit certain designated functions. I believe, the result of the first year students will stimulate other students to initiate discussion and exchange their interpretation of such intellectual products. Such stimulation may open the door for another success. Even though this section relies on a small sample of participants, it signifies the anticipated categories of design concepts that assuredly are worthwhile for the female students.

**Conclusion:**

Physical objects are always associated with meanings. It may be mathematically calculated to respond to human direct needs, embodying natural entities and artificial designs, but the associated meanings are an essential requirement for effective communication. They are mentally constructed and may be assigned to the physical environment in the early or later stage of the design. They may stick or change in response to interpretations and appreciation of people. The study examined some examples of successful iconic architecture produced by star designers followed by examination of the case of the first year female students project exercise. Students express their thoughts and conviction through the principles of formal and spatial organization principles, and principles of architectural ordering. Emphasis was placed on form rather than on function. This study demonstrates the importance of the pedagogical method that focuses on the concept-based design to create a successful semiotic architecture. It also high light the need to introduce starting architectural students to semiotics as a means to improve the quality of their design product.
Notes


2 In some cases, concept-based design may have double massages, such as the case of ancient fortresses where the insiders feel secure, protected, and isolation, while outsiders experience fear, confusion, and feeling of lost.


4 Accessed on 28 Dec 2013

5 http://www.e-architect.co.uk/italy/castelvecchio.htm


7 The addition or extension of an original museum is a sensitive issue. History must be unaltered. Therefore searching for the possibility to distinguish the original building from any addition become a trend. Architects developed three methods: 1. The use of the same architectural style and construction materials of the original building but rather in a minimal or abstractive form; 2. The use of light structure that stand in contrast with the original building. 3. The use of a striking different design as the case of Royal Ontario Museum.

8 http://www.mymodernmet.com/profiles/blogs/modern-architecture-art


References


