

not
white

diversity in beginning design education



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Cultural Perceptions of Form, Proportion, and Scale

abstract
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University environments offer a wide range of opportunities for students to gain knowledge and understanding of people from diverse cultures and backgrounds. Opportunities range from interactions with people from many different countries, to courses provided by the university that raise students' awareness of multicultural issues within our own country. In an effort to support the multicultural mission of the university helping students understand the cultural aspects of aesthetics can be introduced into design curriculums. In the Department of Architecture and Interior Design at one Midwestern university first year design students were given a studio problem designed to support this mission. The primary goal of the project was the introduction of the design principles of proportion and scale.

Western (European) architecture has greatly influenced the design curriculum of most American schools of architecture and often what we teach about proportion is drawn from classical architecture. However, even a cursory look at the art and architecture of people groups, less influential than the ancient Greeks, shows that proportion is repeatedly used as one of the mediating patterns between unity and variety. All cultures develop proportioning systems that are aesthetically satisfying and often reflect an ecological relationship between the people group and the natural environment in which they live. The scale of architecture also reflects the relationship of a people group with their environment. When the human form is used as a measure it reveals useful information about its designers and builders, such as whether they perceive an ability to exert control over their environment, whether they are at the mercy of their environment, or whether they see themselves as one with the environment.

For this project students were required to research a single human culture and identify art, architecture, and functional artifacts within the culture that have commonality in form, proportion, and scale. The cultures ranged from the Balinese of Indonesia to the subway painters of New York City. Students used information they learned about their people group to develop a design concept that controlled the creative decisions of their design. Each student's design was based on a proportioning system used by their people group and each design included a scale figure to show the relationship between the people group and their environment. This assignment was beneficial on many levels. First, it required students to learn about a culture other than their own. Second, it required the students to explore how human scale is related to design. Third, it required them to learn how to identify relationships between components of a design as ratios. Finally, it allowed students to develop an appreciation for the aesthetics of those from traditions and backgrounds other than their own.

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This paper introduces an assignment given to architecture and interior design students in a beginning design class. Two academic issues form the basis for this project. The first is the need for students to develop awareness, understanding, and appreciation for cultures other than their own. The second need is to introduce the design principles of proportion and scale in a way that has meaning for the students and will provide a basis for the transfer of those principles to future designs. The first objective supports the mission of most American universities; the second supports the mission of most beginning design curriculums.

University environments offer a wide range of opportunities for students to gain knowledge and understanding of people from diverse cultures and backgrounds. Opportunities range from interactions with people from many different countries to courses provided by the university that raise students' awareness of multicultural issues within our own country. Unfortunately, few students take advantage of the opportunities to let themselves be engaged by people from other cultures. One way departments of architecture can support the multicultural mission of the university is to introduce cultural aspects of aesthetics into design curriculums. Many departments leave this task to travel programs and to those who teach architecture history, but it is also possible and desirable to let the students be engaged by different cultures in the design studio.

Within the broad category of aesthetics, the principles of proportion and scale provide windows through which one might begin to understand and appreciate the views of another culture. Western classical architecture has greatly influenced the design curriculum of most American schools of architecture and often what we teach about proportion is drawn from classical architecture. However, the art and architecture of people groups, less influential than the ancient Greeks, show that proportion is repeatedly used as one of the mediating patterns between unity and variety. All cultures develop proportioning systems that are aesthetically satisfying and often reflect an ecological relationship between the people group and the natural environment in which they live (Langhein, 2002). The scale of architecture also reflects the relationship of a people group with their environment. When the human form is used as a measure it reveals useful information about its designers and builders, such as whether they perceive an ability to exert control over their environment, whether they are at the mercy of their environment, or whether they see themselves as one with the environment.

A mid-semester project was developed to promote the multicultural mission of the university and to give students an opportunity to learn about proportion and scale. Students in one beginning design class had already been introduced to some of the elements and principles of design such as line, form, rhythm, texture, unity, and variety in a progressive sequence. This project was intended to introduce scale and proportion as two additional principles to add to their repertoire of design tools.

For this project students were required to research a single human culture that was not a part of their heritage. They were to identify art, architecture, and functional artifacts within the culture that have commonality in form, proportion, and scale. Students were asked to develop their own design based on selected designs from their people group.

Over 300,000 million indigenous people representing thousands of different cultures have been identified in this generation (Alderete, 2004)), yet at the beginning of the project not one of the American students in this midwestern architecture class was able to name a people group they were interested in researching. They were aware of broad groups such as Native Americans and Japanese, but few had ever been challenged to separate the idea of national identity from cultural subgroups. This project had the potential to open the eyes of some students to begin to understand another people group and to see the world through the cultural eyes of another.

Anticipating that most students would not be able to identify a culture to study, a list of people groups from which they might choose was made available to the students (see Figure 1). Many on the list are contemporary indigenous groups that have maintained a cultural identity into this generation, such as the Newar of Nepal, the Balinese of Indonesia, and the Huichol of Mexico. Others were urban people groups that have a unique culture with distinctive design such as the subway painters of New York and the Pachinko players of Japan. There were others on the list, such as the ancient inhabitants of the Indus Valley, that represent cultures that have left important information about the culture in the form of artifacts, but are no longer in existence.

Students were instructed to pay particular attention to the relationship of artistic or architectural objects and the natural environment to identify the ecological relationship between the people group and the environment in which they live. Students looked for connections to the environment in the material and form of the architecture and in artifacts. They were also instructed to pay attention to the scale of the architecture of their people group and draw conclusions about the culture's relationship to the environment. The students were instructed that the concept and the design solution should remain abstract. The design solution could be simple or complex, organic or geometric, but the concept would be the governing factor in the completed form of the design solution.

Description of Project

The design program required the students to identify at least five examples of design (art, architecture, and functional artifacts), executed over several centuries, that had commonality in form, proportion and scale. These examples would serve as the inspiration for their designs. The students were told to be able to defend their conclusions about the design trends within the culture they chose. They were to develop a design concept that would control the creative decisions of their design. The concept will give intellectual order and meaning to the solution.

The physical requirements of the process included:

-A composition fixed on a base that defined an 8" x 8" x 8" cube.

-A composition, with a minimum of two forms that reflected the form and proportioning system of the chosen culture. The forms

were to define mass and provide a mass/void balance within the composition.

-A scale figure of a human form was to be placed in the composition to show the symbolic relationship between the design and intent of architecture and design in the culture.

-A graphic rendering of a reversal of mass and void (i.e., space becomes mass and mass becomes space).

The format required that the figure be entirely black and white. If the base was black the forms would be white. If the base was white, the forms would be black. The forms were all to be constructed of one material. Possibilities included museum board, plaster, wood and paper mache. The finished model was to be mounted to a 12" square, white or black, rigid base.

The assignment also included a project report in the form of a spiral bound booklet and a graphic rendering of a reversal of mass and void. The project report provided information about the people group with pictorial examples of their architecture, art, and functional artifacts that influenced their design. They also provided a summary of their research and recorded the design process and final solution.

Results

This assignment was beneficial on many levels. First, it required students to learn about a culture other than their own. It is difficult to weigh the actual impact of this type of project on students. There is anecdotal evidence that the students were intrigued by the culture they studied. They each know something more about another culture than they did before this project. Each student used the art and architecture of a people group to draw conclusions about how they live, and to understand their relationship with their environment. Many students focused on the physical environment, but several students also drew conclusions about the social and political situations of the people group they studied. A student who studied the Azeri people of Azerbaijan noticed the prevalence of arches with a 1:3 ratio of width to height. This observation might have provided enough inspiration for an adequate design. In his research, however, this student discovered that the Azeri are a unique people group who had been bound to Russia as a part of the Soviet Union. With the fall of communism, this group was able to reaffirm some of its cultural identity. The resulting design was inspired, not only by the forms and proportions of the architecture of the Azeri, but also by the political situation of the people of Azerbaijan (see Figure 2).

This project also required the students to explore how human scale is related to design. The introduction to this project included a description of a European cathedral with immense scale in relation to the human frame. The students were asked to speculate on what the scale of such a structure said about those who built it. They speculated that the cathedral could be a tribute to the greatness of the God for whom it was built. The small scale of the human in relation to the building shows human dependence on the mercy of a sovereign and powerful God. On the other hand, it shows incredible design and engineering skill to be able to complete such an immense structure. It could represent the control humans have to move and manipulate the natural environment.

One student noticed that the defining ratio of the culture he studied was 1:1. Almost all of the artifacts of the Sami of northern Europe were based on a square or circle, and supported the reliance of this nomadic people group with their natural environment. He also noticed that human, animal, and natural elements were all symbolized at the same size in the art of his people group. He drew the conclusion that the Sami see themselves at one with the earth; not victims or conquerors, but partners. The student noted the repetition of human figures and reindeer in the artwork of the Sami and used that as the inspiration for his abstract design (see Figure 3).

Another benefit of the Cultural project was that it required students to learn how to identify relationships between components of a design as ratios. This project was presented as an introduction to proportion theory, and an attempt was made to keep it very simple for the beginning design students (and their professor). It was not expected that at the end of the project students would completely grasp the complexities of proportional theories. The goal was to help the students discover simple, intelligible ratios (Schofield, 1958). In previous years when the curriculum introduced proportion, students were required to research proportioning systems (e.g. geometric, arithmetic, golden section) and create a design based

People Groups

Aborigini - Australia

Eastern Turkistan

Ainu - Japan

Embera Drua Tribe

Azeri - Azerbaijan

Huichol - Mexico

Balinese - Indonesia

Manx (Isle of Man)

Basque (Euskal)

Modern Mayan

Burmese (Mynamar)

Newar - Nepal

Cajun - Louisiana

Okinawan - Japan

Chavin - Andes

Palestinian

Chiapa Tribe

Sami - (Laplanders)

Subway Painters

Tamil

Hopi

Inuit

Ancient Inhabitants of Indus Valley

Figure 1 - List of people groups.



Figure 2 - Azeri of Azerbaijan.



Figure 3 - Sami of Northern Europe.

on one of these systems. Frequently, students would choose the Fibonacci series and try to develop a design based on the measurements 1,2,3,5,8, etc., without acknowledging the ratio relationship of one number to another. In the Cultural project, students had to examine art and architecture with their rulers. They measured relating lines and forms and formed ratios, and were surprised to find that ratios were consistent in the relationships they were observing. A variety of proportions were discovered. Several students observed that ratios of 1:2 in the art and architecture of their people group. Others identified a repeated relationship of 1:3. Several students observed the repetitive ratio in their culture was 1:1.6182. Finding the Golden Mean on their own and seeing the beauty of that ratio in the art and architecture of their people group was much more meaningful than being told about it. Having students “discover” certain proportions on their own strengthened their understanding of how they can be used in design. Rather than the instructor telling them proportion is an important principle of design, they were able to acknowledge it for themselves.

Finally, this project allowed students to develop an appreciation for the aesthetics of those from traditions and backgrounds other than their own. There was a broad range of people groups studies. Many of the groups, like the Hopi and the Inuit are indigenous groups who maintain a close connection with the natural environment. Many of their artifacts are functional, yet adorned with images of their environment such as birds, fish and life-generating forms. The students were challenged to consider why a culture with so few technological benefits would take the time to make products necessary to daily life beautiful. On the opposite end of the spectrum were urban groups such as the Subway Painters or “Writers” in New York City. This people group also showed a clear connection with their environment. The student who researched this group found that the writers are expressing their creativity with aerosol and sending messages about their environment throughout the city on the surface trains. Kids from the poorest neighborhoods in New York are thinking about balance and rhythm, and gestalt as they produce their art (see Figure 4) The creation of visually satisfying images is important to all cultures.



Figure 4 - Subway Painters of New York City.

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