A Cumulative Studio Design Sequence: Students Learning within the Context of Their Own Work

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"...simple shapes... do more than tell a story; they offer an order, a kind of grammar for the eyes, a recipe for yet further things to say. Therefore they also teach without preaching theory, they point painlessly to principles than can stimulate and guide anybody in his or her work..."  
Rudolf Arnheim

The concept of quilting is so familiar it is often used as a way of characterizing various systems around us. Our design profession has been known to use it as an analogy to describe phenomena such as the urban fabric, pattern: language, or the American landscape. As an architect who is also a quilt artist, I am interested in the idea of finding common ground between architecture (whose expression relies partly on three-dimensional expression) and the compositional aspects of quilts (a two-dimensional art form). The design fundamentals of both are very similar. Both rely on concepts related to shape, composition, ordering systems, color, texture, and pattern. Focusing on basic vocabulary and skills common to allied arts is a long-standing tradition in beginning design studios.

This paper describes a series of beginning design studio projects developed over the span of five years. To varying degrees, beginning architecture students in these studios are asked to explore different types of connections between quilting and architecture. The concept for this series relies on the use of projects that build on each other and are divided into discreet manageable parts. Each represents an incremental step in the overall learning process. The threads of this project sequence are based on the process of abstraction, manipulation, and transformation. Pedagogical issues are carried forward into each successive project and are layered with specific design goals as the semester unfolds.

BACKGROUND

One precedent for promoting a closer cooperation between the practice of "fine" and "applied" art and architecture can be found in the German Bauhaus. The goals of the Bauhaus can be understood by reading the following quote from Walter Gropius' Manifesto:

"The ultimate aim of all visual arts is the complete building".

Courses at the school varied from architecture, painting, typography, and sculpture to crafts such as pottery and weaving. Weaving was taught mainly because of its commercial application related to industrial production. Quilting may have been excluded because of its reputation as a domestic art and the many labor-intensive hours that it usually demanded. The Bauhaus goal was to create products such as cushions, fabrics, and carpets suited for industrial mass production.

Gottfried Semper also supported the idea that there are important connections between built form and textiles. According to Semper, the roots of all built form were textile production. These connections were drawn in his Bekleidung theory, wherein clothing is directly related to large-scale enclosure designed for human shelter. According to this concept, the wall is the fundamental element of spatial delineation.

In "Studies in Tectonic Architecture" Kenneth Frampton also describes relationships between textiles and architecture. Frampton writes about attitudes of architects such as Louis Sullivan and Frank Lloyd Wright—both influenced by the writings of Semper. For Sullivan, "pressed brick, a material...[was] regarded as a kind of textile." Similarly, Wright described his textile block system as a "mono-material..., woven into a pattern or design as was the Oriental rug."

THE STUDIO EXPERIENCE

Parallels between the quilt and built form provided the framework for initial investigations in beginning design studios over
the last five years. A range of exercises and design projects were assigned. To varying degrees, these studios examined issues related to tectonics, design process/inspiration, design principles, and vocabulary.

**Tectonic Parallels**

The process of designing and making a quilt has specific parallels with the design and construction of a building. For example, quilting requires an "insistent process-oriented step-by-step procedure... starting with A & B and building on those systematically, doing certain things in a certain order." Based on this premise, ways of working with fabric and building materials formed an important investigation in the studio. In the case of fabric, traditional quilting designs are geometric in nature and usually are designed and constructed in block format. The tendency to think in block format was probably due to the nature of the material and the history of conventional quilting. The use of repeated geometric blocks to some extent is analogous to the modular construction used by architects and builders. The traditional notion of a quilt imposes the persistent use of the grid much like a structural grid used in architecture. (Fig. 2) In both cases, the need for efficiency and ease of construction can be key concerns.

![Fig. 2. Use of the Grid (quilt block and plan – Villa Rotunda)](image)

Students began with the concept that a quilt is a composite layer of fabrics constructed to provide warmth and shelter to the human body. Likewise, the building's most essential purpose is to provide similar protection to man from the environment. Based on the analogy of quilt and building as a "wall," the following summarizes analogous relationships.

The role of construction technique and surface manipulation in the traditional quilt was discussed. Basic methodologies were introduced. They included:

**Piecing**: a technique used to assemble "quilt blocks" from pieces of fabric sewn along their edges to form a whole. This method lends itself to block format construction where each piece is usually one rectilinear shape.

**Appliqué**: a decoration or ornament made by cutting pieces of one material and applying them to the surface of another. This method allows the quilter to work with angles, curves, and other more irregular shapes. Traditional appliqué designs range from stylized imitation of plants to realistic drawings of people and places.

**Quilting**: the primary means of holding the layers of the quilt together. Small running stitches are made through the fabric usually to form decorative patterns on the surface of the quilt. The stitches cause the fabric to flatten and recede and the unquilted area next to it to stand out in relief.

In quilts and in architecture, the surface appearance of fabric and building materials respectively provides important visual impact. (Fig. 3.) In addition, the technique of joinery (piecing), layering (appliqué), and surface manipulation (quilting) contributes to the artistic appeal of quilts as well as to a work of architecture. Investigating tectonic issues leads to understanding that the role of materiality and the art of construction are important.

Certain commonalities about the two disciplines resulted. For example, piecing is in some ways analogous to modular construction. Both techniques are efficient and encourage the use of repeated units. In each case, the seam or joint results in the visual dominance of the grid. In contrast, appliqué, a means of decorating the quilt surface, allows the quilter to downplay the grid as the main aesthetic device. As some architects do, quilters recognize that ornamentation can add visual interest, depth, variation, and contrast. Furthermore, like the surface treatment of concrete block, the surface manipulation achieved by quilting adds depth, texture, and pattern.

**Creative Parallels**

After investigating tectonic issues, focus on fundamental design principles became a central theme. The parallels between two-dimensional design (the quilt) and three-dimensional design (architecture) formed the basis of studio design projects. The projects were designed so that a progressive study of the terminology, principles, techniques, and conceptual thinking unfolded. They were challenged to cycle through a way of thinking about their work as an abstraction and as a concrete representation of space and form.

Design principles were presented by first looking at a series of quilt images. Students analyzed these images and were asked to identify their organizational systems. These systems included the centralized system, the clustered system, the radial system, the linear system, and the grid system. In addition, the students discussed design fundamentals such as line, shape, figure/ground, pattern, hierarchy, symmetry, and asymmetry.
After analysis of the quilts, students were led through a series of incremental and cumulative design projects. In phase one of the project series, they designed a set of two-dimensional compositions ("quilt blocks"), one black, white, and gray and another that required the use of color. The second phase of the project sequence required students to design a set of three-dimensional compositions—a spatial model/object and an exhibit space for the display of quilts.

As previously mentioned, all the projects were additive in that elements from earlier projects were carried forward into the next. For example, in the "quilt block" projects, the students were required to demonstrate an understanding of organizational systems and design principles learned by analyzing quilts. In addition, they were asked to consider the role of color; texture, value, position, and size.

The black, white, and gray "quilt blocks," (fig. 4) students started with several pre-determined shapes. There was no limitation on the number of shapes used, and the shapes could be repeated. They could touch or not touch; the only exception was that the shapes could not overlap. The "quilt block" was constructed with paper; such as magazine cutouts, stationery, and construction paper.

The color "quilt block" (fig. 5) introduced the strategy of layering and transparency as well as basic color theory. Students reconsidered the design of the previous project and translated the value of these colors into colors selected from the entire color wheel. In this composition, the student's use of color had to clearly represent an expression of hierarchically arranged layers that demonstrated qualities of transparency and layering—a common visual tool of many quilts. Instead of constructing this "quilt block" with paper, students used prismacolor pencils, watercolor, or pastels. In this way, students were required to master a specific graphic medium.

After the individual "quilt blocks" were completed, students collaborated on a "sampler quilt." (Fig. 6) In quilting, the sampler quilt is described as an assembly of different "quilt blocks" resulting in one well-composed quilt. Students worked together in assembling one group quilt much like the participants of a quilting bee. Just as the quilter makes aesthetic decisions related to the positioning of blocks, students were asked to revisit the previous lessons of color; texture, value, position, and size in composing their "quilt." Collaboration and consensus were also key learning experiences.

The second phase of the design sequence challenged the students in several ways. They were required to make the leap from two-dimensional thinking to three-dimensional thinking.
without making literal translations. As before, the catalyst for these design projects was derived from preceding work. They chose one of the two “quilt blocks” as the parti or compositional strategy for two subsequent investigations of form and space. These projects were designed to develop an understanding of three-dimensional design, the language of three-dimensional form and space, and the design principles that can guide the three-dimensional creative process.

The first three-dimensional project required the students to design a “spatial model” (Fig. 7) based on their previous two-dimensional composition. The earlier lessons of composition, organization, and design fundamentals were important. Issues related to defining space, circulation, and developing spatial relationships were added to the list of pedagogical goals. Students were asked to consider the previous “quilt block” to be a plan, a section, or an elevation of the “spatial model” project.

The act of abstraction, manipulating, and transforming compositional ideas from their previous work was a critical part of the learning process. The students were asked to think about this project on two different levels: as an abstract object and as an architectural space. At this point, human scale was not important, but other tangible concepts such as entry, arrival, passage, dissension, ascension, and departure were part of the agenda. In other words, the design had to work as a sculptural form or object and as an engaging series of spaces to move through and experience. Meditation between two-dimensional thinking and three-dimensional issues in terms of going from the abstract to the concrete formed a pivotal part of the design problem.

The last project in the design sequence required that the student design an exhibit space (fig. 8) for the “quilt.” The premise of the project was that each student was an architect selected to participate in a significant exhibit. Each architect was to design an installation that examined relationships between architecture and sculpture. In this project, the level of responsibility for programmatic requirements was amplified to include requirements for human scale, spatial relationships, horizontal and vertical movement, and structure. A basic understanding of tectonic issues was introduced. They were asked to consciously design all elements that help to define and articulate space such as the vertical planes, horizontal planes, columns, and beams.

CONCLUSIONS

Quilt design has made significant contributions to two-dimensional design. Many design traditions in various decorative arts from very different cultures owe a debt to quiltmaking. As in architecture, the geometric forms are numerous, variable, and often influenced by the environment and circumstances of the designer. Use of quilting to choreograph a studio design sequence can provide fertile ground.

Architecture and quilting can be designed for function or aesthetic value, but, in both cases, good design is based on a unified set of principles. Working with the repeated block, quilt
makers often create abstract designs that reflect the same design sensibilities as the modern painter. The resulting work can produce visually stimulating ideas related to pattern, line, shape, and figure/ground relationships.

Within the context of this particular design studio sequence, students understood the value of searching for design inspiration outside of architecture. They learned that an allied art form such as quilting could inform their design thinking and that ideas can be generated from many sources, including their own work. The process of developing an idea in two dimensions and reinterpreting it into three-dimensional form with spatial consequences provided a valuable learning experience. Design insight and evaluation of their own work through comparison with previous projects provided an easily digestible and manageable context for learning.

Notes
1 Sigrid Wortmann Weltge, Bauhaus Textiles: Women Artists and The Weaving Workshop, (Thames and Hudson 1993), 16.
8 Marie B. Salazar, Quilt, (Barnes & Noble Publishing Group, Incorporated), 10.