Comparative studies of Owen Jones and Christopher Alexander Related to Pattern Design and Cultural Knowledge

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Abstract
Owen Jones and Christopher Alexander are two architects who explored design in different years, so their perspective and exploration in patterns design are distinctive. The comparative analysis between these two architects will start from the different standpoint of "pattern" definition introduced by each architect and continue with a description about the way that the theories of each architect relates to the classification of pattern design and cultural knowledge.
Keywords: Owen Jones, Christopher Alexander, Ornament, pattern design, computation

Definition of Patterns

In general, pattern has meaning as a repeated decorative design, and this general understanding is parallel to the definition of pattern from Owen Jones. He explains pattern as the ornamentation that appears on the surface of buildings, interior furniture, landscape, or in any other artifacts. Owen Jones is an architect whose 1856 study of patterns is limited to the areas of Greece and Rome. Jones started his architectural grand tour between 1832 and 1834, during the trip he ignored the remains of Ancient Greece and Rome, choosing instead to go to Turkey, Egypt, Sicily, and Southern Spain. He started to gather the patterns by surveying from the site visited and collecting the patterns from reliable sources such as documents; then categorized the patterns that he collected based on the geographical location from where the patterns originated.

On the other hand, Christopher Alexander sees patterns using a different terminology. He defines "pattern" as a problem and for which he offered solution within it, for Alexander a pattern has entities. Alexander is an architect that has interest in construction and city planning, he did an in-depth observation for eight years with his team to understand and systematize problems and solutions for creating a better neighborhood for people to live in. His premise is that by systematizing the problem and offer the solution into 253 entities or patterns, he can encourage people either with design background or without any design background can use these entities to create a design and construction that will be in contextual with surrounding neighborhood.

Although both definitions about pattern are different, in general, Jones and Alexander tried to create a classification system. Jones concentrated more on an explanation of classification patterns and ornaments based on the cultural and geographical area, while Alexander systematized problems in the building and environment into patterns that contain problems and solutions to offer. Alexander claims his 253 patterns were

flexible, meaning that he offered more than one solutions in each pattern, so the audience can choose which solution fits in to certain problem they face in designing.

Works of Owen Jones

This section explains the evidence on how the theory of Owen Jones describe design intent and the role of cultural knowledge. The theory of pattern introduced by Owen Jones over a hundred years ago, has been cited by researchers specifically studying pattern design. Accordingly, in this section I will explain the initial works of Jones and the subsequent works from other researchers that have quoted Jones's works.

Attempts to formally explain a design have used the geometry, and an early example is Owen Jones's *The Grammar of Ornament* (1856), in which he organizes patterns entirely on cultural and geographical principles. While published over 161 years ago, his book has been a principal reference for designers who are interested in cultural aspects of patterned ornamentation. Jones foreign experiences led directly to a set of architectural and design theories which combined the pure romanticism of the East with a scientific approach to design, ornament, and color (Jones, 1856, pp.8-13). Jones's rational approach led him to expand and codify his design ideas into 37 criteria known as propositions or principles of good design. Jones claims that his propositions are general principles for the arrangement of form and color in architecture and the decorative arts, which he advocates throughout his work. Based on those criteria, he classifies the patterns he collected into 20 groups, under certain culture.

Jones arranges the patterns that he found in each geographical area based on data that he found during his site visits, and from the reliable sources such as documents. He displays the pattern as a catalogue and gives intricate explanations about the shape and formation of the geometry on each pattern's group. He does insert a slight historical background, but not as detailed as the shape and form explanations. The way Jones displays the patterns based on a catalogue was relevant during his time, when there was limited access to information about other areas of ornamentation. His work on pattern classifications are still relevant as fundamental references, because of the details used, like color, and because of his organizing schemes where he displays the range of the simple pattern to the complex patterns within each group. The classification of the pattern Jones created based on culture and geography opened the door for other ways of categorizing and classifying patterns and can be seen in the development of studies that have shown the classification pattern based on the form and shape.

The work of Jones has been cited by some researcher. It shown in the systematic codification of repeated patterns by H.J. Woods can be seen in the four-part article for the *Journal of the Textile Institute* (1935-36), in which he describes the geometry behind finite designs and one and two-dimensional, one and two-color patterns. Jones' worked also quoted by DK Washburn and Crowe (1988), they introduced pattern symmetry with a more systematic approach that resulted in an easier method of diagramming that helped

determine the symmetry class under the symmetry group. The use of symmetry group is a tool to analyze and categorize the pattern into certain classes under a symmetry group. Symmetry group has seven classes for one-dimensional group and seventeen classes of two-dimensional group. This analytical tool has been used in the study of patterns in cultural artifacts, and some researchers demonstrate the use of this analytical tool as being able to uncover the cultural information between the cultural group. Jones' theories that are quoted and descend from his have been explored by other researchers and informs the design symmetry.

Works of Christopher Alexander

This section explains the evidence on how the theory of Christopher Alexander described design intent and the role of cultural knowledge. Since Alexander brought different definitions of patterns from the general understanding of pattern, in this section I will start the explanation of Alexander theory in the fields of design and planning, and then continue with the explanation of his classification theory related to my research.

Alexander and his team introduced the book *A Pattern Language*. In his book, Alexander tries to systematize the nature of build environments with the concept of network and finds that everything is connected through a hierarchy. By creating and implementing an eight-year survey of in many towns and cities, he was able to create 253 patterns. Each pattern that he created has a number, and each pattern has entities; those entities can be seen as problems that can have a solution to offer. He divided the 253 patterns into three large groups, the first group is towns, which has 94 patterns, the second group is building, with 110 patterns, and the third group is construction, with 49 patterns. In order to create a language from his available patterns, it has to be hierarchically based. For example, if one wants to design a porch, the choices are:

path and goals (120),
private terrace on the street (140),
columns at the corners (212),
different chairs (251).

This short of list above considers the four patterns as a language within which the choices of these patterns we can create, for example, porch. So, in this way the language and its patterns, helped to generate a porch. The language and patterns can be extended, we can add more pattern in between as long as it follows the number given within the patterns, to put in comply with a right order or hierarchy. The hierarchy or order is very strict and flexible in the same time, Alexander build the template to follow but still provide a room to develop, within the limitation solution that he provides in every patterns or entities, the user can make a development in solution without break the hierarchy from the number that every pattern has.

One of the challenges of using Alexander's concepts and language is understanding how to apply appropriately them to practice. The idea expressed in a pattern should be

general enough to be applied in very different systems within its context, but still specific enough to give constructive guidance. For instance, Alexander's pattern "a place to wait" addresses bus stops in the same way as waiting rooms in surgery, while still proposing helpful and constructive solutions. Still, the problems and solution described in a pattern can vary in their level of abstraction and generally on the one side, and specificity on the other side. In the end, this depends on the author's preferences. However, even a very abstract pattern will usually contain examples that are, by nature, absolutely concrete and specific.

Alexander theory is systematizing patterns into hierarchical order, he introduces network system which connect each pattern through order, the order is based on the number each pattern has. Alexanders divided nature of neighborhood into three big groups: town, building, and construction after his in-depth observation within the neighborhood. It gives me a hint that observation on how the artisans works in the real life would give information on how the artisans worldview in constructing a textile pattern with double-ikat technique. Network and system that Alexander explained in his work bring me to understand culture through the domain analysis, as a study of how people in a group think about lists of things that somehow go together. In relation with my research, list of things can be physical, observable things – kinds of textile size, kinds of patterns name, kinds of textile's part, stages of patterns creation process - or conceptual things like roles, emotions, and so on. This method similar with work in cognitive anthropology as explained by Spradley (2016).

Conclusion

The theory from Owen Jones is an underlying theory about pattern classification. The descending theory that has been developed by researchers who have been influence by Jones are additionally quoted in the theory about symmetry group. Christopher Alexander works give important perspectives in the way it systematizes complex elements into an order based on his observation in the field for eight years. Most of patterns created traditionally are complex patterns, and it has more than one design unit and has contextual meaning, so a study related to traditional pattern can apply and adjust this concept of order. The concept of order that Alexander brings explained can be used to analyze data by involving domain analysis; for instance, the domain is a cultural domain that is a category of cultural meaning which includes other smaller categories.

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