

Determining the Parameters and Indicators of Problem-Solving Issues in the Process of Architectural Design

Abstract

Design in architecture has evolved under the influence of various factors. Each design has its own unique features. However, the component of time and cultural and social developments has become an imperative factor in the process of architectural design. The subject examined in this research is understanding the evolution of the architectural design process. The method of this research is carried out via documentary studies and is based on a descriptive-analytical method considering models and theories of the architectural design process based on their historical course. Findings show that one of the most chief weaknesses of common models of architectural design process is the linearity of the path from problem to solution and this leads to lack of analysis of aspects of the problem and mismatch of solutions with the issue under study. Moreover, this has encouraged the designer to prioritize selective patterns to guide the decision-making process. In some models, the linear path of the problem to the solution in the extreme case leads to the deconstruction of the main problem into micro-problems and the production of non-practical solutions that in practice do not answer the design problems. The results of the research lead to the explanation and classification of parameters and problem-oriented indicators in the process of architectural design.

Research aims:

1. To identify the parameters and indicators of the problem-solving issues in the architectural design process.
2. To investigate the possibility of achieving comprehensive architectural design models.

Research questions:

1. What are the parameters of the design process in architecture?
2. How can comprehensive architectural design models be achieved by studying the architectural design process?

Keywords: architecture, design process, indicators, problem-solving

Introduction

The study of architectural designs in the present age shows that today the dignity of tools and the context of architecture for human life is denied and architecture itself is considered the goal. This is what has culminated in the formalist view of architecture and of course has been seen before in the rulings of modernists. Another aspect of the denial of this instrumental dignity, instead of defining the real issues of the audience, has emerged in the capitalist and economic perception of architecture and the recognition of this trend by a range of architects. This approach has changed the face of the architectural issue from a practical environment for human beings, and even architectural education has largely adapted to this attitude. This attitude has been the most powerful approach among architects and an important criterion for evaluating the structure of an architectural institution on architectural works. In this case, the architect puts his hypothetical ideas and his institution in the position of a productive idea and responds to things physically by proposing mental problems and self-made ideals. This process has no manifestation in the human arena outside of the mentality and theories of architecture. In this method of architecture as media and thought, perception ideas have no central problem and in it, man and his cultural ideals are set aside in favor of theoretical ideals made by one or more people. Today, architects take ideas and solutions from special situations, especially the works of famous architects, and add that idea to various issues. This is one of the consequences of not fully understanding the problem, which convinces the designer to extend the old solutions to the new problems. In the process of architectural design, several issues are raised about a design, many of which are not related to the actual users of the space and are revealed from the relationship between the hypothetical users and the design. Even in some cases, the perception of famous architects as hypothetical users is decisive and becomes more tangible than external factors, consequently the study of the problem in design can play a fundamental role in the process of architectural design in the present era.

A review of the research background shows that no independent work with this title has been written so far, but a number of studies have examined the issue in terms of design. Lawson (1996) is one of the researchers who has researched in this field; in this view, when it comes to the "design issue", the Lawson 1 triaxle model is the most important. According to Lawson, designers are traditionally introduced to the answers they generate, rather than being known for the kind of problems they solve. This means that the final product represents the work of the architect more than the design process. While examining the various models proposed for architectural issues, he introduces four generators (designer, employer, user and legislator) and four limiters (symbolic, formal, practical and fundamental) as determining issues in the design process. (Lawson 1996). Many people have strained to chart the design process from start to finish. The common idea behind all these diagrams is that the design process is complex in a chain of clear and recognizable activities that occur in a logical and predictable order (Khairollahi, 2013). At first glance, this strategy seems to be quite reasonable for analyzing the design process, but in practice, it seems that the designer takes steps to move from the initial stages of dealing with a problem to the final stages of determining the solution. That it has no logical order and does not proceed in a predictable way.

This research focuses on the problem-solving mechanism in the architectural design process. If we consider the whole design work as a kind of problem, the design work will inevitably have two aspects of problem designing and solving it. According to the purpose of this research, the research method is descriptive-analytical and analytical-comparative. First, based on documentary and library sources, the common theories of the architectural design process are described, and in the next stage, the theoretical foundations of the central issue in the two categories of research and education are extracted.

Conclusion

The results of the research make it clear that the application of problem-oriented principles in the architectural design process leads to creativity in discovering new ways and innovative methods for problem solving. Examining the current models of the design process shows that the design process has many complexities and the same complexities and multidimensionality of the designer encourage to leave the process of scrolling and prioritizing the principles or organizational model to guide the decision-making process and quitting the ambiguity stage. In a number of theories of the design process, assuming that there is a logical and unique definition of the problem, objectives are carefully defined in the logical analysis of the problem and evaluation criteria are specified in all dimensions, while the deductive adaptation of the central problem in the architectural design process indicates the continuity of all dimensions of the problem and does not seem logical to divide the problem into smaller units. The result is that the deconstruction of the main problem into micro problems has resulted in the production of closed and detailed solutions that may not be the answer to the main problem and do not have the response to all of the problems. Unlike conventional design process models, problem-oriented patterns in the architectural design process imply redefining the demands and requirements of the design as well as the problem-solving and solution-solving process, and the problem-oriented design process requires re-defining the design problem. The results indicate that the problem-oriented parameters and characteristics in the architectural design process can be classified into six categories. This classification is a multidimensional classification and the characteristics defined under the groups comprehensively oversee the entire design process. The first category consists of the content of the problem and the type of problems that involve the designer and the interdisciplinary nature of the design problem. The next topic is design methodology, which includes topics such as structuring the design process and how to deal with the problem. The third category includes problem analysis in which criteria such as framing from different angles, flexible design process, changing the scale of problem-solving, divergent thinking in problem-solving, gradual evolution of the problem, deconstruction and representation of the problem as micro-parameters affecting problem-oriented design. The fourth category is the structure of problem definition and solution, which has characteristics such as synchronization of analysis and composition phase, problem definition through analysis of primary data, problem dynamics, production of parallel schemas and ideas, and problem formulation, among other characteristics and they are imperative in defining structure and problem solving. The next category is problem analysis and presentation tools that criteria such as 3D tools and data processing by software are defined as practical criteria for this category. Finally, the last criterion is to detect deviations from the problem-oriented during the design process, which can be used as performance criteria by analyzing the relationship between variables, concept meta-criteria, matching the problem perspective to the solution perspective, and structured monitoring of the design process. Such procedures can be effective in preventing deviations from the design problem.

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