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Interactive architectural approach (interactive architecture): An effective and adaptive process for architectural design

Mojtaba Parsaei^{*}, Parinaz Motealleh, Mohammad Parva

Department of Art and Architecture, Shiraz Branch Islamic Azad University, Shiraz, Iran

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Abstract This research attempts to offer a new approach for architectural design process that the concepts of interaction and multi-relations are being achieved through it. This approach, which is identified as an interactive architecture, suggests a process that a dynamic and mutual relation will create among all factors and parameters of design and the effects of each factor or parameters on final design will be considered. In fact, the main axis of the suggested approach is comprehensive interaction with all various aspects of design, since the design problems have multi-aspects, mostly. Thus, the final design will be resulted based on these mutual relations and it is a production which will have a maximum and optimum adaption with all factors and parameters. What makes this attitude more significant and crucial is the chaotic situation that is produced in architecture and urban designing of most cities especially in developing countries and leads to lack of identity in these cities. So, the interactive approach can be able to eliminate the challenges and create the fields of sustainable architecture and urban development through an effective method. However, this process encounters to some constraints and challenges along with some potentials which are discussed in this essay. The research method is analytical-interpretative and based on qualitative analyses.

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Introduction

Design process is an issue which has been considered in recent decades and provokes various point of views. Many researches have tried to describe a process which an architect pursues to achieve an architectural production. So that, the main question was that: what is the way and process which a designer pursue in order to achieve final design? The nature of design process's clarification would be a suitable help to improve and develop it. Additionally, it can offer an optimum and more efficient process based on analysing the basic process. On the other

^{*} Corresponding author. Tel.: +98 9171156195.

E-mail address: parsaeemojtaba@gmail.com (M. Parsaei).

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hand, by creating a systematic structure for a design process, the training and using of design process would be more effective and beneficial for the other designers, amateurs and students. Hence, it is attempted to describe a comprehensive perception of the nature of design process. On that basis, the nature of design process can be offered as a process which eliminates the dilemmas and problems in architectural design through it. Thus, it can be achieved a sustainable and successful process for an architectural design in order to reach an efficient design which will be adapted to all specific contexts and circumstances of a problem. The new horizons will be emerged to designers by demonstrating this hypothesis. The research method is analytical-interpretative and based on qualitative analyses.

Nature of design process

Designing is an attempt to create solutions before implementing them [1]. Design process attempts to use optimum solutions in various levels in order to create concepts by collecting and classifying the appropriate responses in terms of providing the goals of designing [2]. Therefore, there is no best response for a design problem and each design problem may have different solutions [3].

Generally, design requires a complex mental process of ability for gathering a wide range of information, combining them in a coherent set of ideas and finally creating an objective form of that ideas [4]. Extensively, design is a kind of activity that relies on wide varieties of knowledge and factors such as visual arts, building engineering, economic and commercial management and logic studies [5]. Professional designers, in every fields of design, use design principles to achieve the answer through the question. Designers learn the set of patterns, which are used repeatedly, as a style or method to develop methods of speculating problems in their mind [6]. Since the architectural design process is multi aspects and complex, which involves both knowledge and creativity together, and also due to the extensive and various issues and concepts which the subject of architecture and design has in common, it is so difficult and even impossible to determine and identify a clear and comprehensive method for design [7]. Most of the designers and architects believe that design activity is series of actions which are endogenous and indistinguishable [6]. From architects point of view, design process is so varied due to the fact that every designer starts designing based on their specific method or ways [8]. In fact, a designer first organized the design problem in order to understand it by using mind ability, then offers the initial scheme based on creativity. The crucial steps of design process are formed in designer's mind, unconsciously; generating the concept is the most important of them. Moreover, designers can improve their intellectual issues and a mind's ability by using some advices and ways [9].

Researches about design processes, which had started in the late of 1950s, purposed to retrieve the activities related to decision-making in designing in order to pursue a specific process from programming to final step of solution by designers through an effective and appropriate way. Therefore, design activities would be communicative, comparable, reversible and repeatable [10]. Hence, design is an analytic process while it requires analysing, evaluating and selecting [11]. Research basis design in the early years believed that the nature of design

process is independent to a great extent from the features of its matter so that design in all fields has a same process [12]. In this view, design is a process which includes dividing the design problem to separated elements by the goal of using research information. After analysing the information, the separated elements are combining to create an integrated unite. [13].

In the first conference of design methods in 1962, the researchers and scholars identified the stages of design process generally in three stages named '*analysis, synthesis and evaluation*' [11]. Finally, based on a triple activities of 'analysis', 'synthesis' and 'evaluation', the general diagram of design process can be shown as an interaction between problem and solution in an status that mirror each other (see Fig. 1) [4]. Table 1 explores views of different scholars about the nature of design process.

De Bono [14] believes that design relies on the method of thinking which he calls '*design thinking*'. So, the differences of design pattern are basically considered as a follower of design problem's status [13]. Most design's definition has common features. First, the nature of design refers to a process, second, this process is goal-oriented, the goals such as designing, problem solving, removing needs, enhancing creating a new useful product [15]. In this research, process means that a series of coherent and explicit actions which binds goal and solution together. In the other words, a logical and purposeful sequences of some actions are called process [16]. Design method also needs both '*sequences of decisions*' and '*design process*' or '*the way of design formation*'. Besides, sequences of decisions include '*analysis, synthesis, evaluation and decision*' must be done in the stages of design process with a high level of details [4]. Additionally, most of the researches done in the field of design processes emphasize on '*cognitive solution*' [17]. Hence, design problems are identified mostly through the attempts to solve them, so that it seems problem and solution are formed together in design process. Interaction between design problem and its solution shows that analysing the problem and identifying the various aspects of it, support the mind's ability and designer's thought in order to achieve the solution [4].

Client, user, legislator and designer

The fields of design are encountered to the others from the largest aspects to the smallest issues [18]. Therefore, it is serious important issue to identify the participants, introduce the users, professionals, legislators and those other people

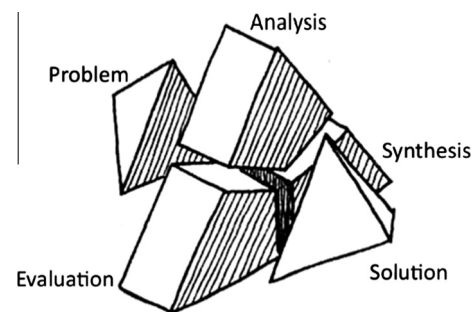


Fig. 1 The model of design process as an interaction among problem and solution [4].

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