Constraint in architecture: Typology and theoretical basis with reference to the concept of affordance

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Abstract

This research concerns the effect of the affordance concept on contemporary architectural discourse and addresses the overemphasis placed on the practical aspects of affordance, the ignorance of theoretical thinking about this concept, and the inevitable conceptual evolutions which emerge. The concept of constraint is introduced and clarified while a theoretical basis is provided for a more developed understanding of affordance in architecture. The research also concentrates on a clear ontology to introduce a conceptual structure for the concept of constraint, which leads to a comprehensive typology of architectural constraints. This research is conducted through a qualitative approach and on the basis of the most recent scientific theories so as to develop a compatible concept of affordance in architecture. Furthermore, the concept of constraint is developed based on logical thinking and analytical methods. At the first step, the concept of affordance is developed based on the Heideggerian point of view. Consequently, a theoretical basis is established to introduce and clarify the concept of constraint through developing the concept of niche in the architectural interaction field. (A.I.F). Then, a three-dimensional conceptual structure is organized based on the origin, function and domain of the architectural constraints.

The results of this research provide the basic theoretical knowledge required to have a deeper understanding of the two fundamental concepts of contemporary architectural discourse, namely affordance and constraint. The study confirms the undeniable essential role of constraint in the perception and creation of architecture. Constraints are the value of the architectural characters postulated as the members of A.I. F. They guarantee the affordances of architectural works as well as the meaning and the truth of architecture. Thinking on constraint brings about the potential to prove a new perspective in the theoretical aspects of architectural knowledge and consequently affects the practice of architecture.

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Extended Abstract

1. Introduction

Affordance, introduced a few decades ago as a new fundamental concept in architectural discourse, not only addresses the challenges of meaning in architecture but also offers a new perspective on architectural issues. This new orientation has led to the evolution of the concepts of architecture, i.e. the emergence of the new ones and the reorganization of the current. Identifying these changes can be considered as the first basic step forward to guarantee the efficiency and effectiveness of this new concept. Concerning the fruitfulness of affordance in contemporary architectural discourse, this research addresses the emphasis placed on the practical aspects of this concept and the complete ignorance of theoretical thinking about it. Accordingly, one of the changes in architectural concepts based on affordance is studied through introducing the concept of constraint paired with the concept of affordance. To provide a deeper understanding of this concept, a clear ontology is explained and a conceptual structure is provided for the concept of constraint, which leads to a comprehensive typology of architectural constraints.

2. Research Methodology

This research is conducted through a qualitative approach and is based on the most recent scientific theories to develop a compatible concept of affordance in architecture. Furthermore, the concept of constraint is introduced and clarified based on logical thinking and analytical methods.

3. Results and discussion

As the first step, the concept of affordance is developed based on the Heideggerian point of view, which leads to a more compatible understanding of the concept of affordance in architecture and the concept of architectural interaction field (A.I.F) developed based on the concept of niche. Consequently, a theoretical basis is established to introduce the concept of constraint. Then, a three-dimensional conceptual structure is organized to provide a deeper understanding of the concept of constraint in architecture.

From Gibson' point of view, affordance attributes the meaning and the value of architecture to the action opportunities that a work of architecture offers. It also emphasizes the unique and bilateral relation between each architectural work and its niche. Based on the Heideggerian relational ontology, the concept of niche could be developed into a world that each architectural work contains; it would be the world which could be called architectural interaction field (A.I.F). A.I.F is a network of relations and interactions bearing the meaning of that architectural work. It contains all the ways in which architecture interacts with its addressees, both human and non-human, and contains a structured set of affordances.

Each specific work of architecture is created to offer a set of main and fundamental affordances so as to satisfy the specific needs of the users of that architectural work, which requires many sets of supporting human and non-human affordances to be offered and a set of many relations between A.I.F characters to be established. The A.I.F characters can be classified as inside and outside characters in terms of belonging to the work of architecture. Inside characters are related to

architectural elements and their properties, and outside characters are human, nature, space, time, or human-made objects. To afford affordances, architectural characters should be subject to the constraints of A.I.F members. Constraints guarantee the affordances, place value on the architectural characters, and determine the essential or desirable properties or relations. In this research, based on three aspects of constraints including function, domain and origin, a three-dimensional structure is introduced. The conceptual structure clarifies the typology of the constraints in architecture and develops a deeper understanding of them. In terms of origin, two types of constraint are recognized, interior and exterior. Interior constraints are the ones generated within architectural characters, while the exterior constraints arise from human, nature, place, time, or human-made objects. Constraints place the values of architectural elements including mass and space characters on three different scales by determining their physical/constructional, functional, and symbolic/meaningful properties and relations.

4. Conclusion

The results of this research provide the basic theoretical knowledge required for a deeper understanding of the two fundamental concepts of contemporary architectural discourse, namely affordance and constraint. The study confirms the undeniable essential role of constraint in the perception and creation of architecture. Constraints are the value of the architectural characters postulated as the members of A.I. F. They guarantee the affordance of architectural works. Indeed, they guarantee the meaning and the truth of architecture. Thinking on constraints brings about the potential to prove a new perspective in theoretical aspects of architectural knowledge, which consequently affects the practice of architecture.

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