

Systematization of Urban Environmental Equipments Design Using Systems Theory

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Abstract

During rapid urbanization, streets were just constructed for traffic. And there were few holistic considerations about urban environmental equipments that interact with pedestrians directly. For better outdoor activities of pedestrians, we should focus on pertinent design factors of urban environmental equipments thoroughly and systematically.

To understand urban environmental equipments, literature review is conducted and field study for grasping real situations. After that, we specify the concept of "urban environmental equipment". Because there are so many elements in different hierarchical levels, it is not easy to grasp their structure and relationships among them. To solve this problem, systems theory is used as a framework to view elements holistically and to find relationships among them.

Any system has a purpose, components (or elements), and relationships among components. So we specify the boundary of street environment and categorize components or factors in four groups: physical, human, operating, and constraint group. Three active factors? authorities, manufacturers, and users that influence the design of urban environmental equipments are selected and their relationships are studied.

In this study, the conceptual model of systematization of urban environmental equipments design is proposed. And influential active factors are selected and investigated for better understanding of complex design process.

Keywords

Systems Theory, Public Design, Design Systematization

Affordances in Objects

A Primary Study on the Formal Description of Affordance for Product Design

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Abstract

The concept of affordance introduced by J. J. Gibson has received significant attention in the field of interaction design recently. This concept is attractive because it simplifies the complex relation between user and object, and more importantly, it provides a direct linkage between object attributes and user actions. It could help designer transform the intended interactions into a self-evident artifact by design. Unfortunately, due to lacking for a formal description of affordance, most current explanations of affordance are incomplete, and not sufficient for its application in design process.

This study aims to develop a formal description of affordance for further application in design. In the context that design be seen as the making of artificial products or environments for human use, affordance can be interpreted as the relation between user ability and product property. From this perspective, the attributes of users, the properties of objects, and the relations between those two are the elements to form the basic structure of formalism of affordances.

In this paper, a brief survey of the affordance literature and its connection to interaction design is introduced; then different perspectives on affordance are explored to uncover its potential benefits in product design; finally, a formal definition of affordance is proposed, by describing affordance from the point of view of interaction design to facilitate its further implementation in design.

Keywords

Affordance, Ecological approach, Formal description, Product design