A Study on Users Search Behavior for Design Knowledge: the LEGO Players as Example

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Abstract

Recently, “user design” expanding the concept of open innovation, has become a popular topic. The users with higher design energy become important sources for the enterprises to advance values of knowledge economy. More and more users search for needed design knowledge by themselves to implement personal creative desires. Most studies on user design were based on the enterprise viewpoint, users’ design knowledge and their search behaviors remain uncovered. This study proposed a research methodology to explore how users search for their needed design knowledge. The method was tested, using LEGO products as design object and sixteen highly-involved players as test subjects. The results showed that, Hands-on esthetic experience, Construction principle technique, and Component appearance are the most essential knowledge attributes, and that Product peripheral media, Self-experience, and Fellow group network are found as key search approaches, for users. With the essential knowledge attributes and the key search approaches, a model of highly-involved users’ searching approaches for design knowledge can be gained. The model was applied to two other product cases. It can be observed that the model can help users to improve themselves to become better designers, and the enterprise to gain insights of users as innovation resources and strategic partners.

Keywords: User Design, Design Knowledge, Search Behavior, LEGO, DIY

1. Introduction

Recently, it is increasingly common for user’s participation in new product development [1]. Users often have creative ideas in their daily lives and expect to create and/or design the purchased products to show personal unique creativity. Some users start to try to learn design techniques and to redesign the style and function of products [2]. Basically design knowledge are two-fold, visible explicit knowledge, such as form, color, material and construction, to name a few, and; invisible tacit knowledge, including drawing skill, thinking approach, problem-solving method, life experience, and inspiration, among others. Hence, this article defines design knowledge as a complex whole that contains comprehensive knowledge, technique and thinking implicated in design process or creation behavior. The users with higher design knowledge and techniques (hereinafter as the “highly-involved” user) to create products are getting increasingly important and they represent a gold mine of ideas and business opportunities [3]. Therefore, design knowledge and techniques no longer exist within professional designers but expand to users. This span goes beyond the traditional professional boundary [4]. The highly-involved users accumulate the needed design knowledge through their own ways and make themselves perform “users as innovators” [5]. The users carry abundant design capability and knowledge, and become important creative sources for the enterprises to advance values of knowledge economy [6, 7, 8]. In knowledge management, the user has transformed from knowledge receptor to knowledge provider. The understanding of their design knowledge and connected search approaches, may propose latent possibilities for product innovations. The roles that a user can play are upgraded from simply a consumer to a contributor, possessing design knowledge and ability and sharing creativity [9, 10]. Most existing researches focused on design knowledge within professional designers or design organizations, the highly-involved users who have accumulated design knowledge by self-education have seldom been explored. Therefore, the goals of this study are: (1) to propose a qualitative methodology to explore the search behavior of the highly-involved users in their