Exploration and discussion of human-machine interaction design of modern life products

Rao Shun

Jingdezhen Ceramic Institute, Jingdezhen 333403, China

21605511@qq.com

Abstract

Factors influencing consumers' product selection include product functions, practicability and sense of satisfaction obtained through product use. Among them, sense of satisfaction obtained through product use is also called consumer experience. Compared with other design methods, human-machine interaction design attached more importance to consumer experience. This paper proceeds from the concept of human-machine interaction design to study human-machine interaction design of modern life products.

Keywords

Modern life product; product; human-machine interaction design.

1. Introduction

With the improvement of people's living standards, people have a higher requirement of products. Comparatively speaking, applications of human-machine interaction design can help design better products to meet consumers' practical demands, thus increasing enterprises' economic profits. The human-machine interaction design quality of modern life products has a direct influence on people's life quality. Therefore, it is necessary to emphasize on human-machine interaction design of modern products.

2. Concept of human-machine interaction design

Interaction refers to information communication between different participants. Among these different participants, humans are in the center. Therefore, human-machine interaction design can be regarded as a form of design for two-way information exchange between humans and machines. Applications of human-machine interaction design are of vital practical significance to modern life products. There is an interface for the interaction process between humans and machines. To screen products, interface design plays an important role. [1]

3. Human-machine interaction interface design of products

3.1 Human-machine interaction interface design of products

3.1.1 Principles for products' human-machine interaction interface design

During the process of products' human-machine interaction interface design, the following principles should be adhered to. First, principle of consistency, meaning consistency of multiple aspects of product interface, such as their form of display. In many application systems, products' information display, interface appearance and interaction style are compatible with each other. The principle of consistency is for the sake of helping users finish interface operations. Relying on consistency of interface design of different products, users, after acquiring interface operations of one product, can apply these operations

to other products. Second, principle of information feedback. The design principle can help users efficiently judge their operation behaviors. Different products provide different forms of information feedback, but all of them attempt to help users better use products and avoid sense of anxiety, which might impair user experiences. In order to accelerate users' understanding of the feedback process, it is necessary to set up a reasonable navigation in the product interface, which can help users better receive system feedback. Third, principle of convenient interface operation. This principle can efficiently increase users' satisfaction degree of products. During the product use process, users will often encounter some problems. For example, they might need to answer calls during information editing. After calls are answered, users can quickly find out the previous information editing interface. The convenient interface which allows interval can save time and increase users' satisfaction degree of products. [2]

3.1.2 Principles for applications of products' human-machine interaction interface

Generally speaking, there are four principles for applications of products' human-machine interaction interface. First, principle of dynamitic nature. This principle means that the operation concept of the four-dimensional space should be integrated into products' human-computer interaction interface. Through efficient changes of time and space, users can harvest better user experiences. Second, principle of rationality. This is a basic requirement of products' human-machine interaction interface. During the design process of products' human-machine interaction interface, practical use demands of users should be taken into full consideration so as to qualitatively and quantitatively analyze the design process. Irrational factors might influence the practical design process, so it is necessary to efficiently control them. Third, principle of interactivity. This principle refers to completing the product interface design by focusing on the interaction process. Applications of human-machine interaction design can increase the competitiveness of products in the market and create more economic profits for enterprises through consumers' improving sense of satisfaction. Fourth, principle of diversity. This principle is intended for design elements. With the increasing number of market survey companies, the design types and quantity provided by them have undergone dramatic changes. Such changes will influence products' design elements, leading to their diversification. [3]

3.1.3 Classification of products' human-machine interaction interface

Products' human-machine interaction interface can generally be divided into the following kinds. First, environmental interface. Environment is one of the major factors influencing the product design process. The environmental factor is characterized by strong fluctuations and is hard to control. The environmental interface contains multiple factors, including nationality, economy, etc. Its influence on the product design process is complex. Second, functional interface. To product design, functional interface is a reflection of the products' practical content. During the product selection process, the top factor to be considered is the practicability of products. Based on Semiology, products' functional interface combines different symbols for products' functional interface design. In this way, consumers can better learn products' functions. Third, emotional interface. Compared with the functional interface, products' emotional interface design, to a larger extent, reflects consumers' spiritual pursuits.

3.2 Relationship between interface design and interaction design

Interaction can be regarded as a reasonable description of the practical relationship status among humans, machines and environments. Interaction can restrict the interface. The significance of interface is mainly reflected as realization of the information transmission process. During the process, the role of interaction is mainly realized through the interface. In the broad sense, interaction design can be regarded as a component of interface design.

4. Human-machine interaction design of modern life products

4.1 Significance of applications of human-machine interaction design to modern life products

Life products are everywhere to find in people's daily life. Life products are complex in terms of both quantity and variety. People do not have a full understanding of functions of life products. During the use of life products, people often follow their intuition. To designers of life products, they should pay attention to simplification of functions of life products for the convenient use of consumers. To the end, applications of human-machine interaction design are imperative. During people's life, work and study, life products are frequently used. Application of human-machine interaction design can adapt products thus designed to practical use habits of consumers and provide more pleasant use experiences for consumers. [4]

4.2 Applications of human-machine interaction design to modern life products

With the constant development of design concepts and design techniques, human-machine interaction design has found increasing applications in modern life products. Here, the virtual keyboard and the smartphone mouse are adopted to analyze applications of the human-machine interaction design.

4.2.1 Applications of human-machine interaction design to the virtual keyboard

The future interaction system of the virtual keyboard is realized through the virtual design. In the virtual keyboard, the infrared projection technique and other relevant techniques are adopted to finish the symbolized keyboard design. In terms of the digital probe, the digital projection is adopted to display different information of the interaction interface to users. The design method has efficiently eliminated the reliance of the traditional design concept on the displayer. In terms of the audio interaction device design of the virtual keyboard, users can use the natural language to achieve interaction with the computer system. The design has alleviated eye strains and working pressure. Compared with the traditional keyboard, the virtual keyboard can make users' use experiences more pleasant and relaxing. [5]

4.2.2 Applications of human-machine interaction deign to the intelligent mouse

The intelligent mouse is designed by Microsoft. Compared with ordinary mouses, the intelligent mouse can increase the browsing accuracy of consumers through the application of the LED. Human-interaction design is mainly reflected in the following aspects of the intelligent mous. First, the button design of the intelligent mouse. Microsoft fully considered terminal users' practical use habits, thus securing promising application prospects for the intelligent mouse. Second, the flash of the tail light can be considered as a response and feedback of the product operation process. Reasonable tail light flash design can immediately eliminate users' suspicion of the operation status, thus realizing improvement of the interaction experiences of users and increasing users' satisfaction degree of the intelligent mouse. [6]

Conclusions

Modern life products have closely related to people's daily life. To apply the human-machine interaction design to modern life products can turn out life products more in line with people's practical use demands. Compared with the traditional design methods, human-machine interaction design pays more attention to consumer experiences. The use of the design method can help design products with a higher satisfaction degree among consumers.

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