Research on the Application of Network Interaction Design Concept in Industrial Product Design

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Abstract. With the popularity of the Internet, people have higher and higher requirements for industrial product (hereinafter referred to as IP), which requires us to continuously enhance the Interaction design (hereinafter referred to as ITD) in industrial product design (hereinafter referred to as IPD). Through ITD, we can improve work efficiency, which will strengthen the connotation of the product and the idea of expression. ITD is one of the earliest methods applied in the field of computer, which will improve the communication between human and computer in vision, hearing, touch and other aspects. However, with the rapid development of computer technology, the concept of ITD has been applied to industrial design, which has become the main method to achieve functional interaction. Through the concept of ITD, we can meet the needs of society, which will improve the interaction between human and industrial design. Interaction is bilateral, which will be affected by both human and industrial design. Therefore, we must strengthen the application of network ITD in IPD. Firstly, this paper analyzes the value of interactive design in industrial design. Then, this paper analyzes the main methods of interactive design in IPD. Finally, an application example in IPD is presented.

Keywords: Network Interaction Design, Industrial Product Design, Application

1. Introduction
Through interactive design, IP can fully reflect the practicality and quickness of products, which will further improve the performance of IP. Among them, iPhone is a typical representative of ITD, which is an IP with simple design and easy operation [1]. Through interactive design, IP will gradually change to intelligent direction, which has been continuously applied in product function and quality. Through ITD, we can enhance the spiritual value of IP, which will improve people's application of IP. Therefore, ITD will improve the user's product experience, which is also an important indicator to improve the acceptance of IP [2]. Therefore, we must continue to strengthen the proportion of network ITD in IPD, which will better marketing products. Through the new design concept, we can achieve design innovation, which will create a good user experience environment. Through ITD, we can meet the actual psychological needs of users, which is also an important concept in IPD [3-6].

2. The value of interactive design in industrial design

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ITD has been applied to industrial design, which has very important value, as shown in Figure 1.

![Figure 1. The value of ITD in industrial design.](image)

2.1. **Enhance the competitive position of Industrial Design Enterprises**

With the continuous development of China's economy, the level of science and technology in China is constantly improving. Therefore, our country has higher and higher requirements for IPD, which requires industrial design to develop gradually to the mode of large-scale innovation. At present, the market competition in our country is very fierce, which requires us to continuously strengthen the requirements of industrial design. Although there is a great demand for products, we can not ignore the quality and overall feeling, which is also very high for the experience of products. Industrial design enterprises must improve their core competitiveness, which can make the enterprise sustainable development [7]. By fully understanding people's perception of product performance, appearance and overall use, we can implement it according to the development of the enterprise itself. Through the combination of the actual needs of IP and the development of the times, we can reflect the humanistic characteristics of IP. Enterprises must carry out industrial design, which can fully reflect the value of ITD. By strengthening ITD, we can ensure that industrial design has a certain core competitiveness [8].

2.2. **Make IP more intelligent**

Only in the process of industrial design using the interactive design scheme, we can effectively reflect the intelligence of IP. For computer software companies, interactive design must be used when designing computers, which can fully reflect the intelligence. First of all, we should work according to the instructions, which can be done by implementing the designed pattern [9]. Secondly, the traditional computer input method is to use the mouse and keyboard for input, but now the ITD can also add some input methods such as gesture, induction and touch control to the basic input. Through interactive design, IPD will innovate according to people's needs, which can fully apply intelligence in the development of industrial design [10-11].

2.3. **Product ease of use**

The ease of use of the product is reflected in the fact that the product can be used by most people, which is the majority of the target users of the product. It is impossible for a product to meet the needs of all people, because people's gender, age, occupation and growth experience lead to different needs and behavior habits [12]. In the early stage of product design, enterprises should be targeted at a specific group, which can be targeted to analyze their physiological characteristics, behavior habits, skill levels and so on [13]. In this way, we can build a typical user model, which can be targeted for design work. Therefore, IPD should be suitable for most of the target users. Before designing products,
we should select target user groups, which can analyze their behavior habits, physiological characteristics, skill levels, etc [14].

3. Application of ITD in IPD

3.1. Emotional communication between products and people

When facing a wide range of products, people pay more and more attention to the emotional value of products. Therefore, people are no longer satisfied with the material functions provided by the product, and they hope to get more emotional resonance in the product, including a sense of control, happiness, love, passion and so on. Product design can not be limited to the level of material function and form modeling, which needs to start from the user behavior mode and living habits. By injecting people's emotional needs into products, we can embody the design principle of user experience as the center. Through the design language and user communication, IP can be designed in all aspects, including product modeling, color matching, material selection, surface treatment process, etc. Therefore, we must give "life" to products, which is often called personification of products. Through their own shape, material, color, use, we can communicate with users, which can express their feelings. Emotional products often use cartoon, exaggeration, rhythm, personification, positive and negative forms in form, which can present a different psychological feeling. As shown in Figure 2.

![Figure 2. Emotional communication of seasoning bottle](image)

3.2. Interactive design of color display

In the interesting products, color plays a more important role. Therefore, color design must be in harmony with form. The design model in this respect is apple iMac, as shown in Figure 3. The computer should use translucent plastic shell, which can match the fashionable and gorgeous color. When working, people can feel the fragrance of fruits, which will bring a sense of distance between people and things. Apple's success has helped Apple overcome the challenges posed by Microsoft XP and IBM compatible computers.

![Figure 3. Interactive design of color display.](image)

3.3. Interactive design of material display
In addition to shape and color, material is also an indispensable element of emotional products. Material is to influence people's emotional experience from both visual and tactile aspects, which can blend visual experience and tactile experience. In the process of using products, we can bring more colorful emotional experience. For example, metal wire drawing reflects the high quality and specialty of products, glass reflects the nobility and elegance of products, and wood and cloth reflect the warmth and comfort of products, as shown in Figure 4. The sofa can use steel structure support, which can give people a strong and safe sense of trust. Velvet fabric can give you enough protection, comfort and warmth. Through modeling and color, we can use plastic or wood production, which can help us better complete.

![Figure 4. Emotional sofa.](image_url)

4. The main methods of interactive design in IPD

4.1. Application of tactile interaction in IPD

Tactile interaction is a new interaction mode, which can be widely used in the field of IPD. Through industrial design, we can influence the change of people's communication and communication mode, which is one of the most popular design modes. In IPD, we must use touch technology reasonably, which can provide more convenient services for consumers. For example, IPD, now many mobile phones have applied the tactile interaction function. People can operate the screen of mobile phone directly by hand, which has more advantages than push-button mobile phone. Through ITD, we can choose a fast-paced life suitable for people. Apple has developed this advanced touch technology, which has used touch screen technology and magnifying glass function. In the design of mobile phones, we use touch screen technology flexibly. The flat computer developed by Microsoft also makes good use of tactile ITD technology. The development of this new product makes the mouse and keyboard gradually withdraw from the market. When people use the new product, it is more convenient and easy to operate. In IPD, touch technology is applied to develop new products, which provides convenience for people's work.

4.2. Application of human computer interaction in IPD

In the traditional IPD, we still have many limitations. In IPD, the focus of staff is the ITD of hearing and vision, which can not meet the needs of people. Therefore, in industrial design, we must pay attention to the production process and product functions, which also pay attention to the user experience. Through the use of human-computer ITD, we can make industrial design products more humane. At present, the development of information technology in China has a great impact on the development of modern IP, especially electronic products, which can provide convenience for people's
use. At the same time, IP must have the function of human-computer interaction, which can better meet the emotional needs of users. In IPD, we should combine people's different needs, use more human-computer ITD, design better products, give users a good experience.

5. Conclusion
ITD will become the mainstream development trend of industrial design, which requires us to continue to expand IPD. Through ITD, we can give IP more emotional, which will be more able to meet the needs of society. Through ITD, we can apply it to industrial design, which will realize the ITD with user experience as the core. Through the concept of ITD, we can build a bridge between users and products, which can realize the emotional experience of ITD.

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