

Study on the Emotional Design of Left-handed People in Industrial Products

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Abstract

Left-handed and right-handed who have the advantage in their respective development process? Has always been a topic of discussion, The article calls on product designers to pay more attention to the "Left-handed" crowd from an emotional perspective, The article mainly elaborates and analyzes data on the term "emotional design" and related documents of the article,And from the perspective of product design, it analyzes the problems faced by "Left-handed" people in product design, Faced with this problem, the article mainly considers and explores from the perspective of "emotional design",And combined with general design, symmetrical mirror design and modular design and other means to conduct overall research, so as to explore a product design scheme that is really suitable for "Left-handed" people.

Keywords

Left-handed; Industrial Product Design; Emotional Design.

1. Introduction

There are some people in our lives who are naturally more flexible with their left hand than their right hand. We usually call them "Left-handed" or "Left-handed",According to statistics, 10% (about 708 million) people on the planet are Left-handed, On August 13, 1975, a group of "left-handers" in Topeka, Kansas, USA also established an organization called "Left-handed International", And August 13 is designated as "International Left-Handers Day."

The development of product design should not only emphasize function, practicality, and beauty. On the contrary, we should pay more attention to the integration of emotion in product design. In today's right-handed society, "Left-handed" people will inevitably live in life, China faces many small embarrassments. The International Left-handed Day is actually to arouse the attention of the whole society to the problem of left-handers, remind people to improve the design of products in a society dominated by right-handers, and give more consideration to the convenience and safety of left-handers. The prejudice against left-handers has existed in various cultures for thousands of years and is still being created today. In the book "Emotional Design", Donald Arthur Norman explained the important position and role of emotion in design from a psychological perspective, He deeply analyzed how to integrate emotional effects into product design to solve long-term troubles The problem of the design staff-the contradiction between the usability of the item and the beauty.

2. Conceptual Analysis of Emotional Design

2.1. Basic Concepts of Emotional Design

The word "emotion" is explained in the Chinese dictionary as: a positive or negative psychological response to external stimuli, such as liking, anger, sadness, fear, admiration,

disgust, etc. Emotions can be classified into: positive emotions and negative emotions. Positive emotions will make the target users more willing to use the product, and will be more tolerant when encountering minor problems in the use process; while negative emotions will be more tolerant. Often the opposite is true. Of course, negative emotions are not necessarily bad. Appropriate application in design will have unexpected results. According to the five levels of Maslow's demand theory, emotions belong to the advanced level of needs. With the development of the economy and material satisfaction, our demand for Maslow has gradually risen to a higher latitude.

Psychology defines emotion as: "a special form of human reflection of objective reality, which is the attitude and experience of humans on whether objective things meet human needs." Donald Arthur Norman divides emotional design into three levels from low to high: the level of instinct related to appearance, the level of behavior related to use, and the level of reflection related to memory.

With the in-depth study of neurophysiology and neurochemistry, emotions are gradually freed from mystery. McLean's research in 1990 showed that humans have three levels of brain forebrain, midbrain, and neobrain, which are responsible for reflexive emotions, basic emotions, and social emotions, which are the result of human evolution. [1]

2.2. The Historical Background of Emotional Design

The iconic event of the establishment of emotional design research was the first International Conference on Design and Emotion held at Delft University of Technology in the Netherlands in 1999, and the "International Design and Emotion Society" was established at the conference [2]; 1986 Kenichi Yamamoto, the former president of Japan's Mazda Automobile Group, was the earliest term for "perceptual engineering"; the current academic circles in South Korea, Europe, and China also accept the term "perceptual engineering" in Japan. In addition, some scholars put forward the term "artificial engineering" based on their own research. "Emotional theory" and "perceptual design". In the postmodernist period, some academics also proposed the definition of "emotional design"; in 2006, VanGorp proposed three levels of emotion: perception and interaction in the book "Design for emotion". And personality; in 2004, Donald Arthur Norman once said that "when technology meets basic needs, user experience begins to dominate everything" [1]; emotional design can not only make products useful and easy to use, but also give products character and build A safe, trustworthy, and positive interactive experience, striving to establish a long and deep emotional connection between consumers and brands, and convey a common value and meaning. The publication of his "Emotional Design" book also marks People's research on emotional design has completely moved from behind the scenes to the front stage.

2.3. Research Methods of Emotional Design

The research methods of the concept of emotional design can be summarized as follows: (1) The design of the external layer, focusing on the customer's perception of the visible or tangible symbols of the specific product, including the color, texture, shape, material, etc. of the product. (2) The design of the middle layer focuses on the interaction process between users and products, such as: fun, health, convenience, etc. (3) The design of the hidden layer pays more attention to the connotative meaning, humanistic value, and aesthetic ideals of the product. These three levels progressively integrate the product with the needs of people at different levels, and truly take the emotional experience of people into consideration in the current design from the inside out. The design methods of these three levels are also products. One of the important research methods of emotional design.

2.4. The Development Trend of Emotional Design

There is a well-known law in marketing-the "seven-second law". That is to say, it takes only seven seconds for a person to make a first impression of an object. It can be seen that the color and shape of an object play a very important role in it. An important role. It takes seven seconds to be interested in the product in terms of product shape, function, appearance, and color, and be able to recognize the product, and even generate the desire to buy. It is another aspect to see whether the product design is successful. Whether it meets the needs of consumers practically and spiritually.

Relevant data in marketing in recent years show that rational thinking is only an auxiliary function to consumers' purchasing decisions. At present, consumers' choices of target products are more derived from their personal habits and subconscious behavioral processes. With the continuous progress of material life and manufacturing technology, the variety of products is becoming more and more diverse. Consumers' attention and recognition of products have gradually changed in the course of social development. Emotional needs and spiritual satisfaction account for consumers' purchase decisions. The proportion is also increasing year by year. Emotional design in the future will inevitably affect product design and marketing. At the same time, the emergence of emotional design is also a manifestation of the progress of social civilization and the gradual wealth of people.

3. Research on Human Emotion in Product Design

3.1. Emotional Design in Product Design

With the development of science and technology, the continuous emergence of high-tech and black-tech products makes people feel unprecedented indifference and loneliness. They have their expectations for these products, and they expect to receive different care and comfort emotionally and spiritually.

In the real society, because everyone's growth environment, region, learning experience, experience, etc. are different, human emotions have uncontrollable characteristics. Even so, we can look for human beings in the process of product emotional design. The common emotions of human beings are reproduced through products, thus awakening the deepest emotions of human beings, and allowing users to have a good emotional experience with the products. How to extract the emotional elements in emotional design so as to perform emotional design more quickly and effectively? I think we need to carefully analyze the emotional appeals of target users, and classify, organize and systematically analyze their emotional elements, so as to design products that fit the user's emotions.

3.2. Emotional Characteristics of "Left-handed"

Nesbitt said: "No matter where you need to have compensatory high emotions." [3] How "Left-handed" is formed, there is no accurate international conclusion. Left-handed people have joy, anger, and sadness just like everyone else, Happiness, sadness, fear and other emotional states. This state is not a concept in the general scientific sense, but a concept that appeals to feelings. The more high-tech in society, the more we desire to create a high-emotional environment, and use the soft side of design to balance the hard side of technology.

In the process of baby's movement development, hand movement development is an important part. Human hand habits can be divided into Left-handed and right-handed. The phenomenon of Left-handed and right-handed in humans is essentially the result of long-term evolution and socialization. Currently, studies have shown that Left-handed and right-handed Hand tendencies can be studied for identification. When the baby grows to about 120 days, the Left-handed and right-handed tendencies of the baby can be identified. [4]

In today's society that is commonly called "the minority obey the majority", "Left-handed" as 10% of human beings have their own emotions and thinking in the process of integration and development with society. They generally have the following categories in terms of self-knowledge and emotions: 1. They think they are smarter than right-handed people, because they see that many well-known characters are "Left-handed"; 2. They think they have psychological defects and regard themselves as I feel ashamed of the natural hand grasping method; 3. Think of himself as a "person with use disorder"; 4. Through investigations, I learned about various social platforms, such as Weibo, WeChat, Tik Tok, Kwai and other apps, Among individual users, there are far more users whose keywords are named "Left-handed" than users whose keywords are "right-handed", which shows that they prefer the unique and distinctive group of "Left-handed".

3.3. Emotional Design of "Left-handed" in Product Design

The emotional elements of the product mainly include: product appearance, product function, use situation and use method. The emotional design of the product is mainly realized through sensory organs, the sensory organs involved are: vision, hearing, skin, taste, smell and proprioception. Through the system cycle of sensory organs-central system-behavioral performance, we can have a basic perception and emotional output of products. Such a process is also an important investigation method for us to study product emotional design.

Most people's emotional design can also be applied in the design of "Left-handed". For example, we can trigger customers' pleasant emotions through design, and ultimately become the power to impress customers and the bond that connects customers and products, thus causing customers' memories and Products with dual emotional resonance will deepen the emotional experience between customers and products, thereby arousing users' desire to purchase and possessiveness, integrating their favorite products into their lives and making them a part of their lives.

The demand for "Left-handed" products is necessary, and unsuitable products will reduce the work efficiency of "Left-handed" people, and even cause injuries or accidents. "Left-handed" should become a group that is generally valued by companies and product designers. There are different kinds of Left-handed products in the world today. In 1968, the first company in the world to deal in Left-handed products was Anything lefthanded, which was founded in London, England. They have branded left-hand products of 300 to 400 kinds, including kitchenware and stationery. , Sporting goods, musical instruments, gardening tools, gifts and other categories. [5] At present, some stores in Germany, France, Austria, the United States, Japan and other countries already have Left-handed products.

Therefore, as a designer, we must learn to grasp the psychology and preferences of consumers, especially the emotions of the "Left-handed" people, and constantly pay attention to the influence of emotion and experience on product design, so as to design a design that can satisfy the "Left-handed" "Products with emotional experience and needs of the crowd, and perhaps designs that emphasize human emotional experience, will also become a new way of design in the future.

4. Summary of Existing Problems and Solutions

4.1. "Left-handed" Crowd Existing Problems in Product Design

4.1.1. Academic Research

Based on the four databases of CNKI (Table 1), a total of 689 related documents were searched with Left-handed and Left-handedness as the subject terms, of which 40 were valid documents with reference value, and the remaining 649 documents focused more on Most of them are related to the fields of medicine, biology, psychology, physical education, pedagogy and other

fields. A total of 402 related documents were searched for right-handed keywords, of which 7 were valid documents. A total of 1018 related documents were searched with "product emotional design" as the subject word, of which 355 were valid documents. This part of the literature covers a wide range and systematically analyzes "product" and "emotional design" from different perspectives. Comprehensive analysis, research perspectives mainly include: engineering technology, information technology, philosophy and humanities. Among them, 99% of master's thesis and doctoral thesis are only 1%. Among them, a thesis with more important reference value was graduated in 2012 Tianjin University's doctoral student Gao Wei's thesis-"Study on the Influence of Emotional Design-Oriented Product Modeling on Customer Emotions and Behaviors", his research results show that: product styling triggers different levels of emotional responses from users; customers' appearance of products The cognition of the user is the root cause of its emotional response; the user's cognitive evaluation of the appearance of the product can trigger the user's behavioral response, and the degree of its response will be adjusted by its emotional response; the user's individual characteristics, professional background characteristics, and its design Evaluation, emotional and behavioral responses have significant influence. [6]

Table 1. Number of valid documents on "keywords" of articles retrieved by HowNet (unit: article)

Key words	Periodical Papers	Effective	Master Doctoral Thesis	Effective	Conference newspaper	Effective	Effective total
Left handed	243	16	12	0	14	3	15
Left handedness	400	24	9	1	11	0	25
Right hand	360	3	17	2	25	2	7
Product emotional design	594	268	402	80	22	7	355

4.1.2. Product Design

"Left-handed" product design has not received general attention from the society. At present, most of the related products at home and abroad are common products of the same kind. The reasons are as follows: First, the simple flip mirror design, such a mechanical design does not It cannot be applied to all products related to "Left-handed"; secondly, "Left-handed" products have practical difficulties in the process of popularization in society. For example, "Left-handed" special products will increase the number of items in the family, and cause other problems such as difficult for users to carry when going out.

4.2. Solution Summary

1. Use the principle of "universal design" to find the balance between the two to redesign the product; 2. Use the design principle of "emotional" to make the "Left-handed" group feel in the process of using the product More humanistic care; 3. Apply the principle of "symmetrical" mirroring, and use this principle for some products, so as to solve the problems of design, production, cost and marketing; 4. "Modular" design principles, such as: Products such as mobile phones, cameras, cars, mice, and rulers are designed for right-handed people. Products like keyboards and water bottles can apply this design principle. The detachable modular design can solve this well. problem.

5. Research Result

Emotional design is centered on paying attention to the user's inner emotional needs, integrating the user's expected emotions into the product design, so that users can feel the product's functions while also obtaining an emotional interactive experience. Now emotionalization has gradually become an influence. The main factors for the development of product design are the same for the product design of the "Left-handed" crowd. This article mainly discusses the emotional design of the "Left-handed" crowd, and conducts a hierarchical and progressive research on the emotional design, and finally draws the conclusion The solution of product emotional design provides a solution for the product design of the "Left-handed" people in the future, and also provides a case reference for the product design of other special groups.

Based on the research results of the appeal, I suggest that in the future product design development process, as a designer, we should have a deeper understanding of our target users, and combine the core content of the design and future development trends to carry out product design, and try to explore a truly suitable Their product design road.

6. Concluding Remarks

"Left-handed" people are part of the human family, they are ordinary and unique like everyone else. The development of human beings cannot ignore the existence of any group, especially the development of design. As Donald Arthur Norman said: "The real challenge of product design is to understand the unmet and unexpressed needs of users." In short, both "left-handers" and "right-handers" have their own potential and a bright future. For this reason, we should use "emotional design" to truly understand the inner world of "left-handers" or other human groups, and Design is a means to let them coexist beautifully in the world of products.

References

- [1] Xie Chuanwei. The application of emotional design in user experience[J]. Design, 2014(02): 21-22.
- [2] Gao Wei, Bai Lu. Emotional Design Theory [J]. Literary Controversy. 2010(14).
- [3] Xu Shihu, Ma Yongjie. Emotional design of products[J]. New West (Next month), 2007(11): 223-224.
- [4] Chen Jing, Zhan Qisheng. A study on the identification of Left-handed and right-handed tendencies in 4-month-old infants[J]. Chinese Journal of Health Psychology, 2009, 17(07): 889-891.
- [5] Li Cheng. Discussion on Left-handed product design solutions[J]. Design, 2013(08): 50-51.
- [6] Gao Wei. Research on the influence of emotional design-oriented product modeling on customer emotions and behaviors[D]. Tianjin University, 2012.