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User experience design and its application in mobile phone design

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Abstract: Starting from the user experience, the objectives of the user experience and the connotation of user experience design are analyzed. Based on the previous one, the six elements of user experience design are proposed. They are products functional demand, products sensory demand, products interactive demand, products emotional demand, products social demand and products self-demand. And case study of mobile phone, the application in products design from the six elements is discussed in more detail. Point out that based on the concept of modern consumption, market competition gradually changes from general products competition to brand products competition, so the user experience design has become a new design method of brand products competition.

1. Introduction

As people consumption level is increasing day by day, the considerable changes have taken place in the consumption idea also. User experience design is a concrete manifestation of modern consumption concept. It will create a sensory experience and psychological identity from the people's life and experience and interest. The design of the mobile phone is a typical application example of the user experience.

2. The user Experience

The user experience is a kind of user's subjective psychological feeling when they use the products. It runs throughout the product design and innovation process. The user experience is not how a product itself is works, it is the user how to "touch" and "use" this product [2]. The user experience has individual subjectivity, but for group consumers, it has strong commonality, this commonality can be done by design.

The goal of the user experience is the user's interaction that they can accept and understand, favorite. "The future product must satisfy the user's state of mind, rather than the one's brain." [3]. In other words, if a product is successful, it is important to let the users experience its "cool", rather than its "value". Obviously, the performance and price ratio of the product is on the relatively minor position.

3. The User Experience Design

The user experience design is that the users will participate in the product design; the enterprise will take the service as a "stage", the products as "props" and the environment as a "setting", to make the users feel better experience design in the process of business activity [4]. In the design process, the user is directly participate in and influence the design, rather than passively waited for the design before. This design really embodies the interactivity with the design and the users. It takes the user experience as the center, to ensure the user's actual demand [5].



4. The Elements of the User Experience Design and Its the Level of the Demand

Based on the people five demand levels about Maslow Model “physiological needs”, “security needs”, “social contact needs”, “esteem needs” and “self-actualization needs”[5], some scholars put forward five elements in the user experience design, they are “feeling needs”, “interactive needs”, “emotional needs”, “social needs” and “self needs”[6].

For industrial products, the author thought that no product functional needs are not enough. Because the product has the duality with “material” and “spirit” from the modern consumption idea of man's all-round development needs. If the product lost “matter”, this is not the product.

For the users, the product practical function and features are necessary, are the first. Actually, this is the Maslow's element of “physiological needs”. Therefore, the author put forward six elements in the user experience design, they are “product functional needs”, “product feeling needs”, “product interactive needs”, “product emotional needs”, “product social needs” and “product self needs”. These needs are suitable, also more comprehensive for the user experience design. And they are incremental gradually, as shown in figure 1.

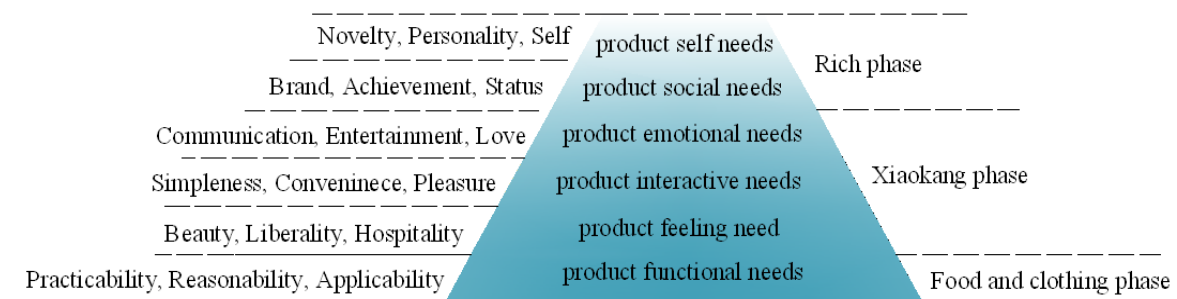


Figure 1. Six elements of user experience design and demand level

5. The Application of the User Experience Design in the Mobile Phone Design

From the initial mobile phone(dageda)shaped like a brick to today's smartphone of exquisite shape, functional diversity, and from the short message business, colorful ring tone to WAP, the use of mobile phones has had a profound effect on society and economy, changed people's life style and concept at the same time, to meet the needs of users, that is, product functional needs, product feeling needs, product interactive needs , product emotional needs , product social needs and product self needs.

5.1. Product Functional Needs

When users will buy a product, the first is to consider product functional needs. In recent years, the practical function of mobile phone is more and more rich, to meet the needs of the different people. The first generation of mobile phone was born more than 30 years ago, and now great changes have taken place in its function.

The first generation of mobile phones in appeared in the late 1970 s. It adopted analog communication technology - simulation system. People can carry with your mobile phones to answer the phone anytime and anywhere. Due to technical limitations, its function is single, its modelling is like a brick. This mobile phone also called dageda (mobile), as shown in figure 2.

The second generation of mobile phone appeared in the late 1980 s. It increased some functions on the receiving and sending information, keeping time, telling time, simple games, and so on, as shown in figure 3. Later, mobile phone had function with editing the default "personalization module". Then, it had function of wireless internet access, and then due to the emergence of wireless protocol and bluetooth technology to make it into the third generation.

The third generation mobile phones appeared in the early 21st century. It is mobile communication system of a new generation with combination of voice communications and multimedia communication. Its value-added services include images, music, web browsing, conference calls, and other information services. In addition to having the functions of the second generation, The mobile

phones also had following functions, they are the video receiving, television, high-grade game, photography, camera, computer, fingerprint identification, signal control of household appliances, etc. as shown in figure 4.

The current mobile phone has entered the intelligent era. Smartphone as shown in figure 5, like personal computers, has the independent operating system, the independent operating space. The users themselves may install software, games, navigation etc. which can be provided by third-party service providers. The users may realize wireless internet access through the mobile communication network by smartphone.

Increasing the practical function of mobile phones meet the needs of the user groups. Young people like smart phones, to meet the needs of the various aspects information, while the elderly still love easy to learn the second generation of mobile phones, just answer function.



Figure 2. The first generation of mobile phones(dageda)



Figure 3. The second generation of mobile phone



Figure 4. The third-generation of mobile phones



Figure 5. Smartphone.

5.2. Product Feeling Needs

As a result, the users like the products with beautiful shape, pleasant color, comfortable using, strong sense of time, to lead to them purchase desire. As a large consumer groups, the young people love a mobile phone which has the function of visual, audio and network, strong contemporary, as shown in figure 6. The phone which had elegant visual appearance and cold colors, equipped with audio-visual experience of multimedia entertainment met the needs of users audio-visual happy, comfortable feeling.

5.3. Product Interactive Needs

Interactive experience is mainly in the style of product interface design, including the layout of the interface, how to using various graphics, fonts, colors, icons, buttons, etc.. This will affect the feeling

of the users when they interact with the product. The more visual, the more enjoyable and fascinating. In mobile phone design, interface color is an important way of users interacting with the product. This is because the user interaction with the product first start from the visual. Color of previous mobile phone is mainly black and grey. And starting from the second generation of mobile phone, The designer pioneeringly used the other color, which largely meet people's psychological needs with product interaction.

The elegant appearance, downy elegant interface color made users have interactive friendly feeling for a mobile phone, as shown in figure 7. The mobile phone interface is light color with light grey and light straw green. Quietly elegant tone, soft interface, eye-catching icons make visual interaction have rich human taste, make a person fondle admiringly.

Interactive experience also shows in the tactile experience. When using the product. Through contacting with the product, the value of the product itself as well as the specific functionality can be conveyed.

For the users of frequently using mobile phones to send and receive E-mail and dealing with the daily affairs, the contact interactive design of the keyboard with person is very important. The keyboard input way which be operated like a computer can follow one's inclinations be choosed input way [7]. As shown in figure 8. is full keyboard design with "double wings" type of mobile phone. The keyboard had the very good finger feeling, to operate with ease.



Figure 6. The mobile phone with elegant visual appearance and typecold colors tone



Figure 7. The mobile phone with light-color tone



Figure 8. The mobile phone with "double wings"

5.4. Product Emotional Needs

Human emotional activities are the main aspects of the spiritual life. The product itself is no emotional. Once establishing some kind of emotional connection with people, there is life for the product.

The product design in the emotional aspects is to follow the regular of human emotional activities, to grasp the consumers' emotional content and their expression and to use the product design with emotional experience, to obtain the resonance of the consumer psychology, to cause them pleasant attitude, to arouse them the pursuit of new way of life [5].

A mobile phone with a camera has become the products which the younger generation has used fondle admiringly. In using, the mobile phone brings them the infinite love and pleasant emotions. Photographic process is a kind of emotional interaction between people and products [7]. When seeing their photographs with a scene or character, they will feel joy and happiness.

5.5. Product Social Needs

People live in the society, their interpersonal interaction and communication have been doing all the time. With the development of economy, people income is on the rise. When people into affluent societies, for their own achievement, to own their status is more important. The brand products just meet the requirements. Generally speaking, the brand product has a high profile. Its quality is reliable, its culture connotation is rich. The brand represents the value, interests, cultural, and other

characteristics. Once one have it, he has an accomplishment and a position sense. With the improvement of product function, the people pay more attention to their pride and glory due to the added value of the product, when they choose the product, and pay attention to brand the exalted feeling [8].

In today's China, owning a mobile phone is not surprising, but having a brand apple 6 local tyrants gold(luxury gold color), shown in figure 9, is a big difference. On the design, the appearance of the mobile phones is harmony fruity, to appear lively. Its color is golden, to appear composed. Giving priority to have such a mobile phone appears that "I" is a successful career and a certain status person in the society.



Figure 9. Apple 7 local tyrants gold



Figure 10. Lollipop series mobile phones

5.6. Product Self Needs.

In this era of making public individual character, that the users pursuit of the products of novelty, unique personality is the explanation of them to meet the demand of self. Publicizing individuality is not infinite whimsy, but in own way, to express own personality and emotion through product.

As a portable, indispensable modern products, a mobile phone also acts as the role of one piece of decoration for many women, to interpret their characters. For women of different personalities, the standards of choicing mobile phone is not the same, and the appearance of the mobile phone is a very important factor for female users. Everyone selects the products according to own love, profession and use habits etc.[9].

LG mobile phone design used to be the women's fashion elements, its classic products, such as lollipop, cookies, chocolate, ice cream, were favored by personality women. Especially was the "lollipop" series, shown in figure 10. Not only its appearance color design was fashion and contracted, from the detail place embodied the essence of life, but also it had good display effect. In the aspect of the entertainment function also meet the need of women users. In the public front, they took out this mobile phone is a very personal and face things.

6. Conclusion

Based on the modern consumption concept, market competition has from the general product competition gradually into the brand competition, and brand product must satisfy the six elements of user experience design on "product functional needs, product feeling needs, product interactive needs, product emotional needs , product social needs and product self needs". Only in this way, the products have strong competitiveness. Therefore, the experience design has become a new kind of product design method.

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