ORIGINAL RESEARCH ARTICLE

Interactive Design of Mobile Phone Interface

Xiaoliang Pan,Hongming Luo,Jing Wu,Zhengfei Lin

Design Art Institute, Beihai University of Technology, Guangxi, China

ABSTRACT

This topic is divided into two parts: (1) mobile phone interactive design of the status quo survey, including the mobile phone market, the use of the crowd, the use of functions, keyboard and interface analysis. (2) Mobile interactive design includes: design positioning, design requirements, innovation, tree structure, icon design. Analyze the advantages and disadvantages of the existing mobile phone interface design through the current situation investigation. Study the interface and operation of the smartphone SMS function of the students, understand the movement habits and defects of the thumb, and analyze the relationship between the keyboard and the interface. So that the existing mobile phone interface more humane, home interface under the control of the user.

KEYWORDS: computer aided process design; digital product; interactive design

1. Mobile phone interactive design concept and development

1.1. The concept of mobile phone

We use mobile phones, often called mobile phones, can be used in a wide range of portable telephone terminals and has been developed to 4G. Mobile phone daily portable, in the use of digital products is the highest. Mobile phones have become the necessities of the times, with the technical level of improvement, people in the demand for mobile phones at the same time, its shape and style requirements are high, of course, ultimately, the phone's user interface, more humane than ever Kind of mobile phone interface icon theme endless, easy to use the operation of the staff and the visual enjoyment is not the same effect.

1.2. The concept of interaction design and development history

Specifically, the two-way communication between the human-computer interaction user and the computer machine is realized by certain symbols and actions such as keystrokes, moving the mouse, touch screen, sensing, and displaying symbols / graphics on the screen. This process includes several subprocesses: identifying interactive objects - understanding interactive objects - grasping object modality - information adaptation and feedback. The man-machine interface refers to the communication medium or means between the user and the computer system containing the computer, Information interaction support software and hardware. Here the interface is defined as the media or means of communication, and its materialization is related to supporting software and hardware, such as a graphical display terminal with a mouse.

1.3. The concept of interface design

Interface design is the medium of transmission and exchange of information between people and machines, including hardware interface and software interface. It is a cross research field of computer science and psychology, design art, cognitive science and ergonomics. In recent years, with the rapid development of information technology and computer technology, network technology by leaps and bounds, man-machine interface design and development has become the international computer industry and design industry's most active research direction. The Software User Interface refers to the appearance, components, and programs used by the software to communicate with the user. If you often go online, you will see a lot of software design is very simple, it seems to give a very comfortable feeling; a little software is very creative, can bring surprises and visual impact; and quite a lot of software The page is full of strange

fonts, fancy colors and pictures, giving the page feel bad. The design of the software interface, both from the appearance of creativity to reach the purpose of attracting the eye, but also combined with the graphics and layout design principles, making the software design has become a unique art.

1.4. The difference between interactive design and interface design

Broadly speaking, it can also be considered that the interface design contains an interactive design, and in such cases it also contains additional parts such as designs or graphic designs, which are finer branches that can be studied separately. Interactive design pays more attention to the interaction and interaction of product and user behavior. And the interface is a static word, when the interface design, we are concerned about the interface itself, interface components, layout, style, to see if they can support effective interaction, but the interaction is the source of the interface constraints, when The interaction of the product is clearly defined when the interface requirements are even more clear, the interface (if there is a visual interface, then the components) for the interactive behavior of the service, it can be more beautiful, more abstract, more Artistic, but not for any reason to undermine the product's interactive behavior.

2. Mobile phone icon interactive design development prospects

2.1. The concept of interaction and the principle of interactive design

Human-computer interaction refers to the process of exchanging information between human and computer in order to complete the task by using some kind of dialogue between man and computer. Human-computer interaction refers to the organization of human-computer interaction between the form of language or language, also known as dialogue, interactive technology. Man-machine through the different human-computer interaction to achieve adult input to the computer information and computer output to the information work, commonly used human-computer interaction methods are: question and answer dialogue, menu technology, command language, fill in the form of technology, query language, natural Language, graphics and direct manipulation. Interactive design should follow the following principles.

2.1.1 Friendly

Friendship refers to the complexity of subjective operation when the user operates the system. If the subjective operation is less complex, the system is easier to use, the better the user-friendliness of the system. For example, in the design of children's courseware, because the activities of children's hand is not very flexible, it is difficult to drag the mouse to complete the movement of the screen object, so try to avoid the design of this type of game activities, and more use the left mouse button Method to play the game. If the interface is friendly, the system can easily handle a variety of basic interactions: for example, various input, output functions, communication functions and extended functions.

2.1.2 Flexibility

Interactive system flexibility refers to the system can use a different way to interact to complete a specific goal, that is, the interactive way should not be rigid, cannot be changed.

Interactive system flexibility should include the following:

(1) the system can fully adapt to all types of users (from accidental users, students from the sparse type to skilled users, until the use of expert users) to provide a variety of requirements to meet the requirements of the interface form, but different interface will never Affect the completion of system tasks, because the system to complete the task only by the user and its objectives, and should not be determined by the interactive way.

(2) The user can develop or modify the interactive mode according to the need, in the need to modify, expand the system function, you can also provide dynamic interactive mode, such as modify the command, set the dynamic menu.

(3) The system can provide different levels of system response information (including feedback, prompt, help and error) according to the user's wishes and needs. In order to make the interactive system flexible, cannot simply provide a large number of interfaces to deal with every possible situation, the better way is through the dynamic analysis of user status and model, the user model as a system design factor to establish a flexible system, Of course, the flexibility of the system is to pay the price, it will lead to the complexity of the program and the operating efficiency of the decline.

2.1.3 Functionality

The function of the interactive system refers to the amount of work that the interactive system can do for each user command. If a command can accomplish many tasks, it is very powerful. Users want the system to provide strong commands, but at the same time should be considered with the user has the knowledge and ability to meet.

2.1.4 Clearness

The clarity of the interactive system refers to the system function and behavior of the user is clear and clear, which means that no matter how complicated the system itself, the user's mind system has a clear, consistent model, the user can clearly understand the system And predict the behavior of the system at any time.

2.1.5 Consistency

The consistency of the interactive system first refers to the work of the system in a consistent manner, requiring the system to work or deal with the steps of the problem as much as possible and people's way of thinking; secondly, different parts of the system and different systems have a similar interactive display format And similar man-machine operation. Consistent interaction system can help users to their current knowledge and experience to promote the use of new systems, new orders, new operations to go, so as to reduce the user re-learning and memory burden.

2.1.6 Reliability

The reliability of an interactive system refers to the ability of the system to work properly (trouble-free). The interactive system should enable users to properly use the system to ensure the safety of procedures and data. In addition, the system should have a certain fault tolerance.

2.1.7 Graphical

Graphics with intuitive image, the amount of information and other advantages, so the use of graphics and metaphors to represent the program, entities and operations, so that the user's operation and response directly visual and realistic.

Use graphics and metaphor design interaction should do the following:

(1) User control software and operation. It is up to the user to define how the application works in an interactive manner, and the user can choose how the software interacts.

(2) User direct control, the user through the use of intuitive, visual screen objects, direct control software running.

(3) To maintain the application system interaction with the real world consistency, between different systems and application systems within the interaction of the consistency, so that they have a similar appearance and operation.

(4) The use of distinguishable metaphor, increase the system's comprehensibility and ease of use

(5) To adapt to and understand the human ability and weakness, so that interactive activities to meet people's cognitive and behavioral requirements, give full play to both human and machine expertise.

2.2. Mobile phone icon interactive design development prospects

In today's society, science and technology by leaps and bounds, the rise of emerging industries is mainly rely on the knowledge of innovation. For example, Nokia companies with inspiring design quickly from the strong competitors to win their market share, and innovation is an effective means to improve competitiveness. When the market is full of functional mobile phone in front of consumers, more and more people began to focus on cell phone landscaping. Which also includes the mobile beauty of this emerging industry development. DIY mobile phones, changing the concept of more and more traditional people for mobile phones, especially nowadays young people. Their pursuit of personality is more intense. Mobile phone beauty is produced in this context, as early as the beginning of 2000 Japan and South Korea and other countries have already begun, has become a hot market is very mature a service industry. Such as jewelry, coating, physical color fast printing, and now the fastest growing, earning the highest profit is the mobile phone film, installed in the phone body surface, the screen and other tangible objects of a cold mounted film, so that the phone can be a new look, bright Eye-catching, not only can play the old machine renovation effect, and can be waterproof, to prevent dust into the keyboard, screen, play a protective role. Now, this industry in the lively streets or popular areas frequently appear. But the mobile phone beauty is limited to the appearance of the beauty of the phone, the icon for the beauty of the mobile phone interface, this is rare. Many businesses just focus on product development form and

function, digital products, its appearance and function more and more tend to assimilate, it is difficult to have a greater breakthrough. Even if the product appears new technology and new features of the new form of design, will be similar to the first product to imitate, often difficult to break through this bottleneck. And the market for mobile interactive design of this piece is not involved in the field. People in order to pursue mobile phone personalization always like to go online to download some theme icons, in addition to other channels to beautify the mobile phone firmware. But often under the theme of mobile phones are stereotyped, there is a repeat phenomenon is not surprising. If there is a kind of specifically for their own preferences made mobile phone theme, it is undoubtedly the leader of fashion, and specialized in this industry, few people. For mobile phone interactive design, the technology used is also very simple, nothing more than the design of flat software. And the plane software, it is often difficult to get started is not very high, as long as the intention to do, and full of some creativity and imagination, and grasp the current fashion direction, you can create a great mobile phone theme. Compared to the digital design of the kind of lengthy three-dimensional modeling, the precise analysis of the size of the structure, the design of flat software is relatively interesting. The market decided to design and development of the direction and philosophy, only with innovative ideas to do product design, can make themselves and others in the same starting line or even ahead of other people, set their own absolute competitive advantage.

3. Mobile phone interactive design

3.1. Topic background

A designer, the first innovation should be changed to their own design concept, the product of innovation and innovation for their own purposes. In this sense, industrial design reflects the positive aspect of human spirit. To give imagination, give creation. Good idea can create a good product for the world appreciation.

At present, the market is roughly divided into mobile phones, mobile phones, mobile phones, mobile phones, mobile phones, mobile phones, mobile phones, mobile phones, smart phones. Each type of mobile phone can meet the different status of people to use. Such as learning the phone, suitable for students to use, business phone is suitable for office use. Mobile phones are used in different age groups, like young people tend to music phones, mobile phones, while the elderly are like to use older phones. You can also according to the different types of mobile phone preferences of the audience are also different, such as photography with a camera phone and so on. The appearance of these mobile phones on the color of the color is often more or less close to the mobile phone positioning in line with the main crowd.

Therefore, the design of mobile phone icons should also meet the above described. First of all, do not rush to think about the content of the subject, but to think about the theme of the design in line with the type of mobile phone, and even what the company's phone models.

3.2. Subject Determination

I made a mobile phone icon theme, more in line with the theme of music phones. Music phone, as the name suggests, is the addition of MP3 and mobile phone, but not a simple stack, it must also have a reliable digital music player, to support MP3 and AAC and other open standard music format, and product capacity requirements there are certain requirements. At the same time, music phones also need to have music search, music download and transfer of music files from other devices. In view of the music phone in the product, price, technology, use and business applications have a great breakthrough point, and thus in the short term to play the mainstream of the market, and get rapid popularity and development. Music and entertainment functions have been vigorously promoted, personalized and fashion very popular with young people. Although young people are the main audience of mobile phone users, but it is not only suitable for young people, as long as people who like music are suitable for use. Unlike some business phones as there are limitations.
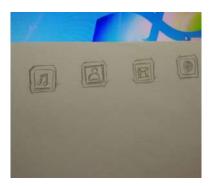
The subject has a lot to consider the direction, but also with the characteristics of music phones to choose. I chose to retro as the main tone of the phone icon. In addition, the direction of the design mainly take the European style, consistent with the image of the theme.

3.3. The difficulty of the theme of production and solutions

After establishing the theme, carefully analyze the problems of its production. Although the theme of the production is simple, not too complicated tools, just use some PHOTOSHOP plane software can be a simple, but sometimes also means that the design of monotony, how to design a simple theme in the case of creative fashion sense Icon, which is my own to seriously explore. You can learn some of the online picture of the material, to seek inspiration. You can introduce a lot of material, without affecting the integrity of the case, as far as possible to avoid the direct use of its image, to its composition of the detailed analysis, the exaggerated deformation, or even directly access the image of the overall color, but to the user intuitively feel the subject. It is difficult, but also worthy of the challenge.

4. The mobile phone icon design process

4.1. Draw sketch

4.2. Creative ideas

Most of the market are smart phones, and smart phones are mostly young people in use, young people are a group of more publicity personality groups, so in the design of young people to consider this large group of psychological. The rapid development of modern economy, people's pace of life faster and faster, it is more and more nostalgic, I personally also very much like a sense of material has a sense of retro things, all of the first was the words of the retro traction. Browse a theme of the software and found the retro icon interface and texture texture icon interface is to download a lot, but at the same time with the material and retro two elements of the icon interface is very small. So more to determine the direction of this design.

4.3. Draw the overall interface

Desktop at the bottom of the picture shown in Figure 4-1-1,4-1-2, first with Corel DRAW draw a good frame, and then export, export the vector, and then import photoshop, a certain post-processing, Figure 4 -1-3 for the finished picture after the completion of the phone.

Figure 4-3-1

19

Figure 4-3-2

Figure 4-3-3

4.4. Refer to the various mobile phone menus on the market

Figure 4-4-1

4.5. Summarize the menu contents to be designed and draw their options separately

First use PS in the sketch, and paste the color, and then add the material, add layer style, so that the icon has a complex material texture (Figure 4-3-1,4-3-2,4-3-3)

Figure 4-5-1

Figure 4-5-2

Figure 4-5-3

4.6. Final effect

Figure 4-6-1

5. Conclusion

In this paper, through the analysis and design of mobile phone interface icon, the following conclusions are drawn:

(1) Through this design, aimed at their own industrial design to get new ideas, new ideas, development and upgrading of industrial design level, and have a certain image creative design capabilities, so that the future design time to provide a calm response program.

(2) the importance of industrial design to improve the understanding of industrial design is a very extensive subject, the past is only reflected in the use of the product, and now put forward the product shape, symbolic, decorative, ease of use, Personal preferences and other higher human requirements.

(3) The practical application of graphics software is also more able to easily control, for the operation of the software is also full of confidence. The future of any product design should be more detailed to do, down to complete every job.

References

1. Gu Yuqing. Product Form Analysis. Beijing: Beijing Institute of Technology Press.
2. Yang Jiachun .Pro / ENGINEER digital product design manual. Beijing: People's Posts and Telecommunications Press .1994.
3. Wang Jicheng. Ergonomics in product design. Beijing: Chemical Industry Press .1997.
4. Li Binbin. Design effect of psychological evaluation. Beijing: China Light Industry Press .1989.
5. Wu Jixin. Design performance. Beijing: Higher Education Press .1994.
6. Deng Weibin. Product design performance. Beijing: Jiangsu Fine Arts Publishing House .1996.
7. Chen Cunrui. Television digital art. Beijing: China Radio and Television Publishing House .2002.
8. Li Leshan. Design Survey. Beijing: China Construction Industry Press .2005.
9. Ride Hyde. Classic design. Beijing: Renmin University of China Press .2003.
10. Ai Ping .Rhino Vray product design creative expression. Beijing: People's Posts and Telecommunications Press .1998.