

Research on Optimization Design of Human-Machine Interface in Mobile Games

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Keywords: Mobile Game; Human-Machine Interface; Optimized Design

Abstract: In 2017, the number of smartphone users in China has reached 1.3 billion. Smartphones are no longer simple communication tools. They integrate entertainment, business, communication and other functions into one, and become an important electronic tool in people's lives. As an important application of smart phones, mobile games have increased in number of users year by year. In order to occupy a strong market, mobile games should not only highlight the integration, humanization, challenge, fun, and optimization of mobile phone interfaces. As a mobile phone interface for players to interact with mobile games, the rationality of its design directly affects the user experience and user evaluation of the player. Therefore, the design of the mobile game interface should be easy to learn, easy to use, conform to user operating habits, interactive, and secure. The article mainly discusses the optimization scheme of human-machine interface in mobile game design.

1. The Mobile Game Interface Overview

Mobile game refers to the game software that uses mobile phone software as the information carrier and runs on the mobile phone, that is, the game program that can be run on the mobile phone. Mobile games are divided into stand-alone games and online games. Single-player games can be run independently only through the mobile phone client without using other network media. Online games use the Internet as a medium to connect the game operator server and the client. Complete a sustainable, individual, multiplayer online game. With the continuous development of smart phones, the functions of mobile phones are becoming more and more perfect, and the development of the mobile game industry has also ushered in an unprecedented opportunity [1].

The human-machine interface, that is, the user-used interface, is a dialogue interface between the person and the intelligent terminal for information transmission and exchange, and is a window for realizing information conversion between the system and the user. All areas involved in the exchange of human-machine information need to involve human-machine interface. All information exchange and control activities of human and intelligent terminals are completed through human-machine interface [2]. The good man-machine concept is simple, easy to understand, practical and easy to index, ensuring a good user experience and improving user efficiency.

Interaction design is a discipline involving many fields, and interaction design is an artistic display. At this stage, the types of mobile games are becoming more and more abundant. The interactive design is an important measure to improve the entertainment of mobile games and meet the entertainment needs of mobile users. It can be seen that the ultimate goal of interaction design is to improve the performance of the product, to make the user feel emotionally pleasing, and to highlight the important value of the design product.

2. Mobile Game User Interface Design Principles

The mobile game user interface is different from the ordinary PC-side interface. In the design process of the mobile game interface, attention should be paid to the characteristics of the mobile game user interface: on the one hand, the design of the mobile game user interface should ensure the uniformity between the interfaces. Try to maintain a uniform style between different interfaces in the same mobile game. Style-integrated interface design elements include color, shape, overall

structure, common window styles, fonts, and more. And the unified interface style can minimize the game capacity, the picture resources can be reused, and the program design can also achieve uniform visual effects by applying code. On the other hand, we must deal with the relationship between game interface design and model porting. Many games need to be transplanted between different models of mobile phones. The screen size is different and the impact on the game interface is relatively large [3]. Therefore, to deal with the relationship between game interface design and model migration, you can scale according to the length and width of the screen. , adjust the phone interface. Therefore, the interface design of mobile games should follow the following principles:

The so-called interactive freedom principle means that the game designer should provide accurate and concise game information for the user, and guide the user to play the game more smoothly. The game interface design must ensure that the game information should be instructive, so that the user can immerse through the visual and auditory experience. In the joy of the game, the whole process emphasizes the freedom of mobile phone users, making them feel the game in all directions, enhancing their game experience and highlighting the entertainment of the game. The essence of mobile games is entertainment, so in the interface design, not only to ensure the convenience of operation, but also to ensure the fun of the game. Before designing, it is necessary to understand the user's age, gender, psychological characteristics, etc., and accurately locate the customer base. For example, male and female users have different choices of game types. Therefore, the interface design should conduct comprehensive research and analysis, and the mobile game will be the entertainment features are fully utilized. Mobile games take up more time for users to fragment, so the game operation design should follow the principle of "easy to use, difficult to master". The hardware interface allows users to quickly enter the game characters through buttons, touch screens or other types of input methods, in the shortest engage users into the game during the time [4].

3. The Optimization Design of Human-Machine Interface in Mobile Games

Specifically, the optimal design of the human-machine interface in mobile games can be carried out from the following aspects:

The visual interface content of mobile games includes text, graphics, animation, etc. These elements form different interfaces with uniform styles. However, the mobile phone interface is limited by the size of the screen, so the amount of information that can be provided to the user in the game interface is also limited. The range of people's vision is limited. Therefore, in the design of mobile game interface, it is necessary to avoid arranging large paragraphs of text, pictures and animations in the same interface, and try to design a simple visual and intuitive game interface to improve the user's game experience [5]. Eliminate the irritability caused by visual screening pressure and improve the interaction between users and games. For example, the "Glory of the King" with a very large user volume uses a neatly arranged "square" module, and uses a combination of pictures and text to introduce the game function, especially the function of the function module in the edge area, which allows the user to A quick understanding of the game's features. When a user first comes into contact with a mobile game, whether it can master the function of the game in a short time will have a decisive influence on the continuity of its subsequent use, and the short-term memory of the person is very limited and unstable, so the mobile game The interface design must fully consider the limits of the human brain processing information, try to make users familiar with the function of the product without consulting the manual, and can operate correctly to improve the user's loyalty to the game. For example, the "Glory of the King" is used as an example. The function introduction adopts the combination of picture and text. The game interface adopts the disc-style operation lever, so that the primary users can also quickly master the operation essentials. In short, the excellent human-computer interaction interface can directly and intuitively convey the interface information to the user, which is more consistent with the user's cognitive habits, and can guide the user to enter the game operation mode quickly and intuitively; appropriate prompts, graphic metaphors, Designs such as hidden help can provide users with more and more meaningful information, improve user comfort and convenience during the game [6].

When a user performs a game operation, each operation step has a specific purpose, and different operations may lead to different results, so the interface design needs to maintain a high interaction with the user, forming timely and effective interactive feedback to allow the user to improve the user experience by better understanding the results of your actions. In the design of mobile game interface, we must fully consider any problems that may occur on the user side. For example, the size of the screen of the mobile phone may have certain limitations on the operation of the user, the size of the finger does not match the size of the button, and the area of the touch screen of the game does not match [7]. Common problems in mobile game interface design, and these problems may also cause some joint operations or misoperations, affecting the user's gaming experience. In order to solve such problems, the layout design should be strictly in accordance with the balance principle of up, down, left and right to reduce the frequency of occurrence of the above problems. According to the relevant research results, even in the same section, the layout is different, and the user's attention will be different. Usually, the user pays more attention to the information on the left side, and the information above the section is more easily noticed by the user. It can be seen that the upper left is the best rendering point, and the interface design can try to arrange the important functional area in the upper left. Also increase the frequency of the main content, for example, you can set the reversible option, the user can repeatedly get the content of interest and choose. In addition, we must also pay attention to improve the trust between users and mobile games. Users will be involved in payment, game recharge and other operations when operating mobile games. When users perform such operations, they should set a reminder mechanism to inform patients of the next possibility. The result is that the user can choose whether to carry out the next step, and improve the trust between the user and the mobile game through good interaction [8].

The interface design of mobile games should first understand the target users, clarify the user's expectations for the game, and the user's social role positioning. According to the user's psychological characteristics and behavior habit analysis results, the mobile game human-computer interaction is improved, and the user model is established, and then the game interface is designed according to the user model. In the process of designing the mobile game interface, the designer should continuously refine the design plan on the basis of comprehensive consideration, and do not need the innovation of the designer's personal thoughts. Therefore, in the design process, the principle of people-oriented should be followed, and the problem should be considered based on the user's point of view. Fully understand the user's habits and cognition, try to avoid the designer's personal aesthetics to interfere too much with the game design, avoid over-learning and blindly follow the other games. As an intelligent digital terminal, the user interface of the game is the main area for users to exchange information and function with the game. When designing a game. Even if its interaction logic and interface hierarchy are very reasonable, it may affect the user's gaming experience due to other problems. Therefore, the interface design of the mobile game should fully consider the various problems that the user may encounter during the operation, take precautions against the wrong operation that the user may take, or provide solutions; always insist that the user is the leader of the game, in the game interface Provide user-aware feedback channels, continuously collect user opinions and suggestions, understand the user experience, refine the design of the game, and continuously improve the user's loyalty to the game [9].

4. Conclusion

In short, with the continuous development of information technology and mobile communication technology, mobile phones have become an indispensable tool for people's daily life. They integrate communication, entertainment and other functions into one, and mobile games are an important embodiment of mobile entertainment. The design of mobile games should fully consider the user's game experience and recognize the importance of human-machine interface interaction design in mobile games, design a personalized game interface for users, and design according to user psychology, user vision, memory and thinking mode. User mode, design simple and easy to use game interface, to ensure the security of the game operation process, follow the principle of humanism, fully respect the user's dominance, fully optimize the mobile game human-computer

interface design, make the mobile game interface design more Can be close to the user, design a game interface with good human-computer interaction.

Acknowledgements

Fund Project: This paper is the application of VR virtual reality technology in Qindong Red Tourism Memorial Hall of Weinan Normal University Project--one of the phased achievements of "Liu Zhidan and Xi Zhongxun Memorial Hall" of Weinan Normal University (Project No.: 2018SKYB09).

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