

Computer Game Interface Design Based on Human-Computer Interaction Analysis

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Abstract: With the development of computer and graphic technology, electronic games have emerged. Electronic games refer to games that use devices assembled by electronic components as the running platform. Human-computer interaction in the design of computer interface is an important component of the game, and its function can also bring players a certain sense of pleasure. Electronic game is a game mode that interacts with electronic game by controlling electronic game equipment. Interaction is actually a process of input to computer and output to user. Because there are various ways of input and output, the ways of interaction are also diverse. This concept is relative to the passive form of entertainment. Watching TV, reading and watching movies are all passive forms of entertainment. In these ways, entertainment is expressive and the audience can only participate passively. Starting with the concept of computer game interface, this paper expounds the concept, composition, function and significance of interactivity in game interface design.

1. Introduction

The era of Internet Science and technology has come. Now the development of computer has risen to an important stage, and the application of computer games is also making its own “long-term” development plan [1]. With the development of computer and graphics technology, electronic games appear. Electronic game refers to the game with the equipment assembled by electronic components as the operation platform [2]. A successful game interface needs to have three elements at the same time: graphical interface, touch interface and sound perception. Human-computer interaction in the design of computer interface is an important component of the game, and its function can also bring players a certain sense of pleasure. Electronic game is a game mode that interacts with electronic game by controlling electronic game equipment. Electronic games are divided into video games, computer games, mobile games, handheld games and so on according to the different game running platforms. Computer games are electronic games based on computers.

The proposal of the concept of human-computer interaction makes game makers pay more attention to the game from the plot of the game to the beautification and humanization of the game interface [4]. Interaction, including the user's use of the product (hardware and software) and the feedback of the product (hardware and software) to the user. The interaction process is actually a process of input to the computer and output to the user. Because the ways of input and output are diverse, the ways of interaction are also diverse [5]. Game is a participatory and interactive form of

entertainment. This concept is relative to passive forms of entertainment. Watching TV, reading books and watching movies are all passive forms of entertainment. In these ways, entertainment is expressive and the audience can only participate passively [6]. When playing a game, the feeling of devotion and tension brought by the game itself, the hearty control of the gamepad and the feeling of anxiety and disappointment when waiting for the next scene to appear are all interactive experiences [7]. The formula “successful game = interface + others” has also been circulated in the game industry in North America, which fully shows that a good interactive game interface not only brings players sensory enjoyment, but also improves the sense of game substitution [8]. Game interface refers to the user interface of game software, including buttons, animation, text, sound, windows and other game design elements in direct or indirect contact with game users [9].

2. Basic Theory of Computer Interface Design

2.1 Game Design Theory

Game design, at least computer and controller game design, is a very new field. It involves many fields, including film, literature, art, commercial design, communication, mathematics, information, physics, philosophy, psychology and so on. Usually, the most important thing game players pay attention to is the entry mode and speed of the game. Once a game spends too much unnecessary time in entering people, it will cause unnecessary disgust among players, which will greatly hit the game players' enthusiasm. Designing a game roughly includes the following main contents: conceptual design, background and scene design, plot design, role design, interface and user interface design, game design, internal system and balance design, as shown in Figure 1.

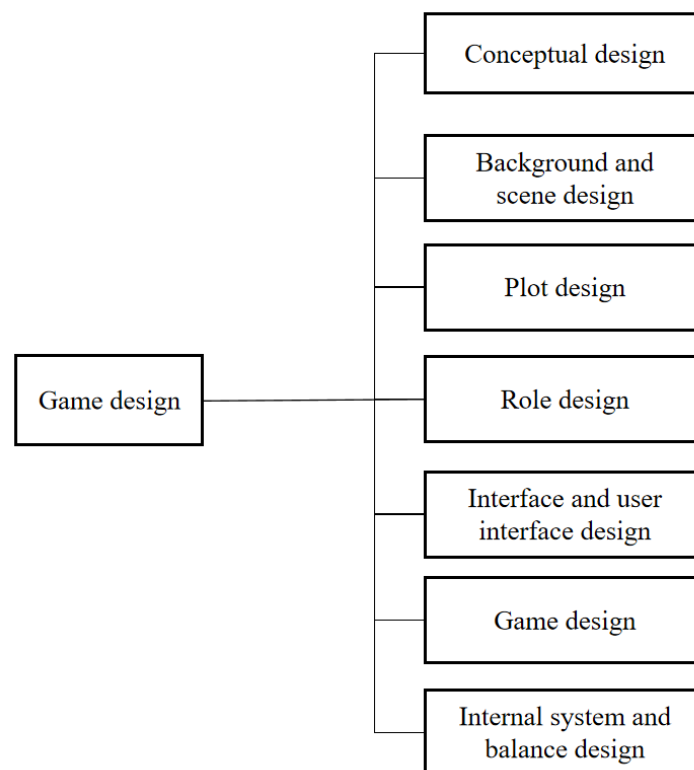


Fig.1 Composition of Game Design Content

Different game platforms have different influences on game design. The design of handheld

games and mobile games requires that the resolution of the game screen should be consistent with the game platform. Considering the platform's ability to process data, the game itself should not be too large, thus affecting the fluency of the game. We require to further reduce the impact of computer games in the page design of computer games and help the games quickly enter the normal user interface.

2.2 Man-Machine Interface Design

Man-machine interface (HMI) is a medium or channel for users and machines to transmit information to each other, and it is also an operation mode of interaction between people and machines. There are often a lot of step introductions and suggestive information in a large-scale game, and these information need to be quickly captured by gamers, so the principle of consistency and unity in the game should be considered when designing the game. When people have the desire and requirement to obtain certain information, they operate and control the interface. The feedback of various information of the machine acts on people through the interface to realize the basic information transmission between man and machine. People receive the information transmitted by the machine through the interface through vision, hearing, touch and other senses, and then respond after processing and processing by the brain, as shown in Figure 2.

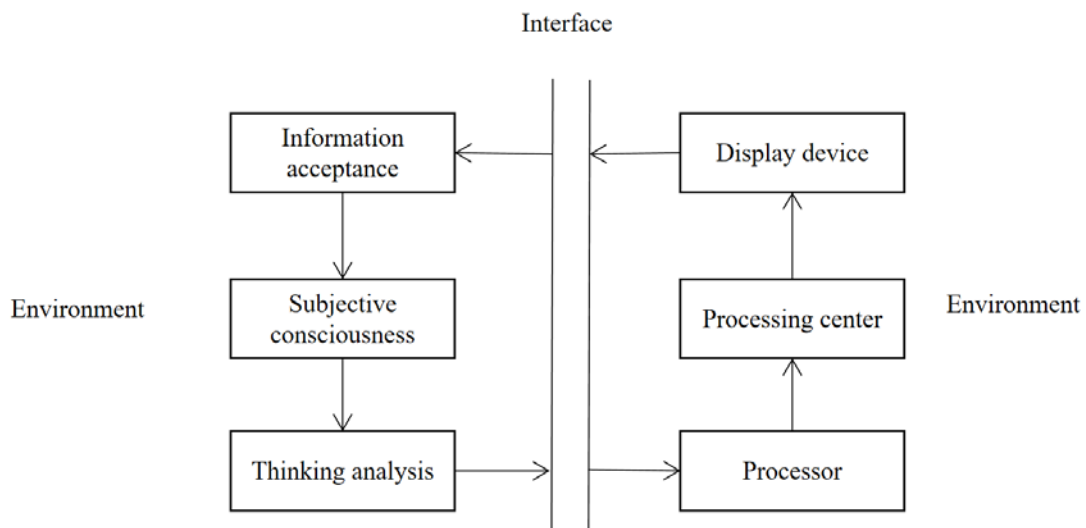


Fig.2 Man-Machine System Model

The unified layout structure will make the game players have a fixed form of thinking, so that they will not be unable to find the corresponding tips and key points when updating the game in the future, which can also save a lot of text explanation. Game conceptual design is the conception of all the characters, scenes, events, themes and other elements in the virtual world to be established in the game.

3. Research on Interactive Design of Computer Interface

3.1 Increase the Artistry of the Game Interface

The artistry of the game is very important, and the beauty of the picture will attract many gamers, which is an important development situation at present. From the user's point of view, interaction design is a technology that makes products easy to use, effective and enjoyable. It is dedicated to

understanding the target users and their expectations, understanding the behaviors of users when interacting with products, and understanding the psychological and behavioral characteristics of “people”. Although most of today's game manufacturers have paid attention to the great role brought by screen beautification, they have not achieved ideal results in the actual feelings of players. Therefore, it is necessary to pay attention to the harmony and unity of pictures. For example, during the game, the player's home page is generally matched with some basic warm colors of orange, green and blue, which will bring the player a warm and comfortable feeling. The main interface of a game is the first window to convey the game concept to players. Before entering the game, players will generate a preconceived concept through the game name. There is also some emphasis on the soundtrack. Generally, light and clear rhythm music is used, which is conducive to alleviating various pressures of game players. The use of mouse and keyboard is generally simple, so as to avoid the distaste brought by complicated mode. Because leisure games focus on the relaxation of the mood and the comfort of the game experience, attention should also be paid to avoid complicated operation in the use of hardware devices such as keyboard and mouse.

3.2 Optimize the Shape of the Game Interface

In the modeling design of various elements of the game interface, we can use the relevant theories of semantics and adopt a more humane and cognitive concept, so that they can quickly understand the modeling design requirements and better master and operate the game. Like all graphic creations, the artistic design of the interface also includes the principles of contrast, coordination, interest and rhythm, and follows the layering of the subject and background in the picture and the browsing order. The application of plastic arts is also the key to the game, and the humanized design concept can be adopted to simplify the difficulty of the game. Generally, players like games with good pictures and charming scenery, because visual effects play the same role as even the most exciting storyline. Element modeling design should be as concise and intuitive as possible, and can even take the initiative to complete self annotation and expression. There is no need for game players to guess the intention of game designers and express them vividly. The game screen, menu and control bar should serve the atmosphere created by the game. If the game reflects the story of medieval Europe, all relevant elements in the interface should be the design style of medieval Europe, and even the elements of the interface should be disguised as part of the game world. In the guide design in the plot, the style of question marks or manuals can be designed at relevant NPCs for intuitive explanation, so as to make players have a better interactive experience.

4. Conclusions

Man-machine interaction in computer interface design can not only improve the quality of the game itself, but also bring the ultimate feeling of game experience to gamers. This paper discusses the interactive design of game interface, which not only has the general rules of interface design, but also has the individual design principles in the special field of games. Find the target users and explore the interactive needs of users, identify and use interactive elements, and design and use interactive logic, so as to make the players forget that they are using computers, but really immerse themselves in the game. The man-machine interaction design of computer game interface not only significantly improves the game quality, but also plays a positive role in the player's game sense and substitution experience. This requires that the interaction designer of game interface not only have the ability of general interaction designer, but also master the psychology of game players and the laws and characteristics of game interface design. This shows its important role. We should effectively give full play to its advantages in view of this phenomenon and further develop the human-computer interaction content in the interface design of computer games.

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