

Research on Animation Design of Mobile Game Interface

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Abstract. Animation design of mobile game user interface is mainly composed of two parts, that is, visual design and human-computer interaction design. Visual design is to consider the principle of simplicity, visual process, and aesthetic requirements to be followed during the design process. The human-computer interaction design in game animation production process is to consider user demands, behavior habits and interaction process during the design process. Visual design focuses on presentation and communication but interaction design focuses on internal alignment. Guided by interaction design, visual design becomes more vivid.

1 Introduction

Mobile games have become the indispensable way of entertainment for young people in modern time. The interface of each game is quite different from each other though they roughly share the same game style. A more comfortable and beautiful interface becomes an advantage when game developers become more and more mature nowadays. "Comfortable" and "beautiful" are two basic requirements, which respectively correspond to visual design and interaction design. Among all factors that can make a game successful, emotion is very important, which depends on the artistic visual design and human-computer interaction design. It is necessary for us to summarize and study interface design style in such a huge world of online games. Satisfying user demands is an essential step in winning the user viscosity for any game. Playing online games is the behavior that players pursue pleasure and inner satisfaction, which makes interface design one of the important concerns among the players.

2 Animation Visual Design of Game Interface

Nearly 80% of people's access to information comes from vision and visual design is the means and result of eye functions in the subjective form. Vision needs to convey accurate information, vision should contain a certain amount of information, and visual effects come from the degree of matching and the unique matching between vision and information. Animation visual design of game interface and visual communication design share both commonalities and non-commonalities. As a component of visual design, animation design mainly aims to complete the expression of the designer's wishes, which, on one hand, shall fully consider the feelings of the users and pay enough attention to them, and on the other hand, is also deeply limited by the hardware of the game itself such as screen resolution and network speed limits, etc. To overcome area limitation and accomplish the idealistic design within the limited interface area requires a designer to follow the principle of simplicity, visual process in design, and aesthetic requirements.

2.1 Principle of Simplicity in Design

According to the physiological structure of the human eyes, we know that the most effective part of vision is a small proportion in the retina, which determines that vision can only hold a small amount of information at a certain time. Therefore, a design must follow the principle of simplicity in design. A contradiction exists in UI design for online games, that is, a designer intends to exhibit the full content of the game in front of the players for the sake of online game development so as to enable players to quickly receive the attracting points of the game and enhance the game's appeal to players. However, players always find it hard to make a choice when they are faced with complex information. Besides, the surface of the game screen is also dominated by menu text and icons, resulting in smaller operation space and visual fatigue of players. In addition, excessive complex

design makes users unable to find the main body, understand the theme and focus on the content of the game. Therefore, animation design shall follow the principle of simplicity and a designer should carry out the scientific analysis of players' memory patterns as well as their attention problems based on the full understanding of their feelings.

2.2 Visual Process in Design

Visual process is the process of vision's information perception. Vision tends to follow the regular movement in one direction or another due to the influence by the strong and weak information received by the eyes, the psychological suggestion of form and color, and the habit of observation. In order to maximize the visual effect of game interface, an animation visual designer must have the clear understanding of the target players of the game and carefully analyze the physical and psychological characteristics of the visual flow of people in this category. As a result, visual design should study the relationship between the elements used and the problem of visual process because game interface serves game play and game content. Therefore, the best visual placement should be reserved for in-game characters or scenes and function icons should be placed around them so as not to block the line of sight of players.

2.3 Aesthetics in Design

Visual organs will produce sensation when they are stimulated by external visual stimuli. For example, every light that falls on the eyes will have an effect on perception and generate the exciting, depressed and passive feelings. If a design is positive and exciting, it indicates that the design is pleasing to the eyes, which will be further improved to be aesthetic. Therefore, a designer shall take the players' aesthetic state into consideration and guarantee the users' interpretation of the image information and function icons on the interface to the maximum extent while carrying out animation design.

3 Animation Interaction Design in Game Interface

Nowadays, interface of most online games focuses on visual design and aesthetics but ignores human-computer interaction. The concept of "interaction design" was put forward in the 1980s. Besides, Donald· A· Norman also mentioned it in his *Design Psychology*. Both of them emphasized the same idea of user orientation, which overturned the basic conceptual pattern in people's daily life and pointed out that safety and easy to use would always be the key factors in competition in the aspect of product design.

Interaction design should start from the user's perspective and the deepening of human-computer interaction will become a technology that makes the interface more efficient and makes users more comfortable in operation, which aims to understand the psychology and thoughts of the target users, understand the purpose of the users' behavior when interacting with the computer, and understand the logic of human thinking and behavior. Therefore, the design of human-computer interaction should also be diversified and strengthened in these aspects. Interaction design of product interface and behavior will create an organic relationship between the product and its users, which is the purpose of interaction design.

3.1 Fault Tolerance Principle

Interaction design should have fault tolerance principle, which needs to tell users what they can and can't do. In the description of ergonomics, study before categorize body's conditioned reflex, logic and pattern of psychological stress, find the certain relationship formed with the computer and summarize the effect of above-mentioned relationship on human mental ability and such study is called cognitive engineering. Mobile games must follow ergonomics and cognitive engineering in the process of game animation design. JefRaskin discussed in his *The Human Interface* how the human brain works and emphasized that as a tool, a computer should be designed for the characteristics of people's mental ability, and human-computer interface should be designed according to human abilities and shortcomings so as to make the user a pleasant and efficient person. A designer should learn to see things from the user's perspective, follow a user-centered design philosophy, try to consider every error that the user might make during the operation and try hard to find ways to avoid these errors so as to make the operation reversible.

The interaction of gestures will be used in the animation production of 4D games and it is a fault-tolerant process as much as possible, which is an interaction pattern for creating more gestures with reference to gestures in reality. "Clicking" response on touch screen is the most basic interaction mode and more gestures may be added to it according to the difference in plots. For example, in the scene of "inside the monster's belly" in *The Adventures of Tintin*, after the dog gets the key, it has to unlock the door in a way mimic how people unlock a door in the real world. Currently, dragging, erasing, rotating, sliding, and other real-life gestures are naturally applied to the game design so as to have formed the new interaction pattern as shown in Pic. 1.



Fig. 1 Scene of Key Searching in The Adventures of Tintins

3.2 Principle of Habit

Designers need to learn how to use the habit of people playing games to create game animation so as to enable users to develop the habit of working smoothly. Human-computer interaction needs to consider the corresponding user group of the game, summarize the operating habits of these users and apply the habits to the interface. Taking the operating keys in a game as the example, the traditional way of human-computer interaction is to control the input of the game through the keys. It is a common knowledge for most players that WASD are direction keys and numbers from 1 to 9 are skill keys in most 3D games and some games use QWER as the operating keys, use Enter to send the message in chat and use the left button of the mouse for choice. In animation design, the progress bar is often used to indicate the time required. The sliding gestures are divided into left, right, up and down in different directions and the effect may vary depending on the starting position of the sliding. Up-down sliding is often used for content that requires multiple screens, such as lists, articles, etc, and left-right sliding is often used to switch pages or operations. No animation animation is required in design. Double finger scaling is generally used for interface scaling, which, compared with double click gesture, has a wider range of applications and is more intuitive and accurate.

3.3 Principle of Friendliness

Principle of friendliness indicates that the online game interface needs to maintain certain guidance functions. It is mentioned in *Design Psychology* that "focus on visibility, provide some clues to the users and let the users understand it faster and clearer", namely, design needs to be simple, intuitive, easy to control and easy to understand. Therefore, the icon design on the interface shall be as close to the actual meaning of the icon as possible. For example, packages, swords, horses and other icons in the game shall all remind people of their roles in the game. The game book based on the plot of film and television animation can be regarded as a product between digital books and digital games. Compared with a pure game, such a game book still uses the plot of the original film as the main design line. Therefore, it can still be regarded as the "interaction book". Compared with the story books, the biggest difference is to add interaction content to game books so as to make the interaction throughout the whole story. Therefore, detective and adventure films are best candidates to be designed into such products. The game book based on the plots of 3D

animation *The Adventures of Tintins* released in 2012 is full of challenges and also echoes the plots of the film. For example, the scene “escape from the ship” is consistent with the content of the film, and just like the character in the film, the player has to wait until the captain is asleep before untying the rope. Otherwise, the escape may fail. Please refer to Pic. 2 for the new media game book *The Adventures of Tintins*. Role play is often used in game book design and just like the character in the animation work, the player has to fully experience the plots in the film. In the whole application product, the link of film narration and the link of making a breakthrough in the game keep appearing as a whole.



Fig. 2 Game Scene in *The Adventures of Tintins*

4. Conclusion

Game animation design becomes more commercial, industrial, and transparent. Smooth and perfect animation design is an important prerequisite and guarantee for excellent mobile games. Animation design needs to seek balance and harmony among artistic beauty, reliability, security and ease to use. Visual design needs to consider the connection between the game itself and the original animation, aiming to create the new artistic form with the help of mobile equipment. At the same time, interaction design also needs to be expanded in many ways such as adopting new interaction methods of voice interaction, gravity sensing and body sensing, etc. Nowadays, China's animation industry chain is not mature, which needs the injection of more creativity and development.

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