

# A Study on the Application of Digital Multimedia Art in Mobile Game

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**Abstract:** Digital multimedia art industry has sprung up, which is a new art form, and also a comprehensive art form combining rational thinking and artistic inspiration. Digital multimedia art is based on the use of digital technology in the process of artistic creation, and the combination of digital multimedia art and mobile game is entertaining and interactive. Mobile game is the fastest growing digital multimedia art, and the production process of mobile game is the integration of computer technology and digital multimedia art, so mobile game creation cannot be separated from digital multimedia art. Digital multimedia art has become an important support for mobile game design, and it plays an important role in the development of mobile game.

## 1. Introduction

With the progress of information industry in today's society, digital multimedia art industry, which is based on the integration of digital technology, network technology and cultural industry, has emerged as a new industry in recent years. It is known as the core industry in the knowledge economy era of the new century and a new economic growth point after the information industry. The rapid development of digital multimedia art industry has promoted the popularization and deepening of related products and technologies [1]. Digital multimedia art can be regarded as a new art form. It is an aesthetic process of art in which designers use various digital devices such as computers to express and realize their creativity, and ultimately complete their works of art. Through various media related to digital technology, the works are released to the audience for appreciation in a participatory and interactive way, and the interactive mode is completed [2].

## 2. Characteristics of Digital Multimedia Art

Digital multimedia art based on computer technology and Internet technology is a new comprehensive art form which integrates human rational thinking and artistic inspiration. In the process of artistic creation, the premise is to make full use of contemporary advanced digital technology.

### 2.1. Digital multimedia art with the characteristic of creative tools

Digital multimedia art can appear as a creative tool just like the brush and ink in the hands of artists and musical instruments in the hands of musicians. However, the characteristics of these tools are mainly manifested in digital technology, which is realized by means of digital devices such as computers [3]. This characteristic makes art creation no longer confined to the traditional way of creation, but can be realized by new technology. However, the instrumentality of digital multimedia art has greatly improved and differed from traditional art, mainly reflected in its characteristics on the impact of artistic creation mode and process [4]. In short, digital multimedia art breaks through the simple tool nature of traditional art, especially with strong Internet technology support.

### 2.2. Digital multimedia art with the characteristic of media

This feature is mainly reflected in the dissemination process of digital multimedia works of art. At present, the main channels of dissemination of digital multimedia works of art based on digital platform are traditional media (such as newspapers, magazines, television, broadcasting, records, etc.), independent digital media (mainly including CD-ROM, CD-ROM, excellent disk, etc.) and

network media. More importantly, designers can publish their works through the Internet, such as music websites, video websites and so on. Moreover, the viewer can communicate with the designer at any time. Therefore, designers can get feedback in time and achieve two-way communication [5].

### **2.3. Digital multimedia art with virtual characteristics**

Virtual is a way to surpass reality by virtue of the imagination and association of designers and appreciators. Digital multimedia art has many advantages over traditional art in creation. The creation of digital multimedia art is completely completed in the virtual environment of computer, so it can realize some creative methods that traditional art creation can not achieve. For example, the software's history function can be used to return to previous operations to modify errors in the painting process. For example, traditional film photography can not be previewed on the spot, while digital photography can see the effect on the spot, and can be modified, deleted and other operations. Finally, digital multimedia art has interactive characteristics. The interactive nature of digital multimedia art mainly includes viewers' watching, browsing, using and controlling. For example, streaming media technology is a powerful expansion of interactive browsing function. The interactive characteristics of digital multimedia art, in the final analysis, are determined by the characteristics of the relevant media. On the one hand, it shows that it is possible for the viewer to control the order in which information is obtained. On the other hand, it can also be used to describe the interaction between the creator and the appreciator of an artistic work.

## **3. Development and Characteristics of Mobile Game**

### **3.1. Development of mobile game**

Early mobile games were mainly word games, or word exchange games. In this kind of game process, players usually respond to the corresponding information according to the mobile phone prompts sent to the players by the game itself. For example, the famous short message game "virtual pet" is a typical text game. In the game, game service providers will give some short message prompts, so players can play the game through mobile phone short message. This way of game communication achieves the purpose of the game through text messages between players and game service providers [6]. The whole process of the game is expressed by words, so the entertainment of the game is poor. Character games have a common feature, that is, through the description of words to play games. In the process of the game, players need to give full play to their imagination, so the game is relatively monotonous. With the development of science and technology in recent years, the functions of mobile phones are more and more powerful. The combination of digital multimedia art and mobile game has made mobile game develop into a complex form with strong entertainment and interaction, which can be comparable to the game console. At present, mobile games are mainly animated games, which are closer to the familiar "video games" and "PC games". Players use animation to develop the plot for the game. Now mobile games use more intuitive and more exquisite pictures to show directly, so the entertainment of animation games is higher than that of text games and more popular with players.

### **3.2. Characteristics of mobile game**

However, due to many limitations and performance differences of mobile phone hardware devices, a balance of various factors should be considered in the process of game development and design. The screen sizes of mobile phones vary from 80\*30 pixels to 320\*240 pixels. Resolution directly affects the size and expressiveness of the model in the game, which every designer must have some experience [7]. In addition, due to the diversity of mobile phone models and operating systems, a same game needs to be changed to run on different mobile phones. Therefore, designers should consider the adaptation of mobile screen at the beginning of design. For example, at 128\*128 pixel resolution and 200\*200 pixel resolution, how to display the same wonderful picture effect without replacing the picture is a question worth considering.

At present, the number of colours provided by mobile screen is only 65,000, 260,000 and 6

million, which is very few compared with computer display, and this is also an important bottleneck restricting designers to play. The unique light-emitting principle of mobile LCD screen can not achieve the brightness of traditional display, which leads to the color-rich patterns can not show very good results in strong light. When mobile phones are used outdoors, the problem is particularly evident. Therefore, designers must take this into account when designing pictures of mobile games. Designers should not set the color contrast too close, and the picture design must be concise and clear.

### **3.3. Support of digital multimedia art for mobile game**

Today, the entertainment industry is rapidly becoming a new global economic growth point. This is no exception in China. A remarkable feature of the development of China's entertainment industry is that a new art form with digital multimedia art as the entertainment industry center is being rapidly constructed. Mobile game is one of the fastest growing and most popular entertainment areas in digital multimedia art [8]. When we buy a new mobile phone, we will find more and more entertainment functions embedded in the mobile phone system, especially various wonderful games. Mobile games have become a part of many people's lives, and people are becoming accustomed to using mobile phones as a new entertainment tool. The whole production process of mobile game is actually the integration of computer technology and digital multimedia art. The most commonly used design tools are no different from ordinary computer game production software. Most game companies use Maya, 3dsMax, Painter and other software. The production process is usually modeled by 3dsMax and Maya and then modified in two dimensions. Modeling is very important in the whole process of making mobile games, but it is not necessary to design and make particularly elaborate models. The resolution of mobile screen is very low, so it is not necessary to use a large number of polygons for model building. The maximum size of the finished image will not exceed 200\*200 pixels, so some details on the image are difficult to reflect.

In the view of some designers, the action design of the game is as complex and delicate as possible, but the game running on the mobile phone is not easy to achieve these, because the complex and delicate animation will inevitably occupy a large amount of storage space of the mobile phone. Therefore, on the premise of guaranteeing the effect of the game, it is better to reduce the number of animation frames as much as possible, increase the repetition of key frames, and adjust the actions as obviously as possible, so as to achieve good results.

In short, the creation of mobile games has become increasingly inseparable from the use of digital multimedia art. In the current mobile game, there are many traces of digital multimedia art everywhere. For example, car chase, bullet whistling, soldiers fighting with the devil and so on all show the powerful power of digital multimedia art. From a technical point of view, digital multimedia art has brought revolutionary changes to the production process of mobile game design. In the process of using computer to create mobile game, the film, sound and picture can be combined organically, and the storage capacity can be increased, and the message can be modified and released at any time. As far as the design progress is concerned, this method saves a lot of time, so designers can concentrate more energy on strategy research and creative ideas. The development of digital multimedia art has become an important support for the design and production of mobile game. It marks the development of mobile game creation towards modernization and diversification. With the continuous integration of digital multimedia art and mobile game, more innovative creative methods and production methods are constantly emerging. The ultimate goal of digital multimedia art in the development of mobile game is to achieve a comprehensive function of high efficiency, multi-platform and omni-directional application. The common development prospects of digital multimedia art and mobile game are very considerable, which need our joint efforts to achieve.

## **4. Conclusion**

The development of modern computer technology and Internet, especially the emergence of 4G network and even 5G network, provides the necessary technical basis for the development of

mobile game. In this study, the characteristics of creative tools, media and virtual features of digital multimedia art were introduced in detail, and the development process and characteristics of mobile game were elaborated. Digital multimedia art plays a significant role in supporting mobile games, and the creation of mobile games can not be separated from the application of digital multimedia art. In the current mobile game, there are various traces of digital multimedia art everywhere.

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