

The Influence of Digital Media Art on Game Design

Jiayi Yao

Guangdong Industry Polytechnic, Guangzhou 510300, Guangdong, China.

Fund Project: This Paper is Project of “Guangdong Provincial Department of Education’s 2016 Second Class Brand Specialty Construction Project of Higher Vocational Education in Guangdong Province -- Film and Television Animation Specialty”.

Abstract : Since entering the era of 5G digital information, due to the iterative updates of hardware and software, gamers have increasingly higher requirements for the realism of game design, the sense of context, and the aesthetics of game character modeling, which to some extent pushes the level of game production iteratively upgrade according to the pace of market development. In the application of digital media software, the production staff’s art skills, three-dimensional design software, rendering plug-ins, two-dimensional drawing software, motion capture technology, digital lighting software, etc, are all key technical factors that directly determine the level of game production and artistic height.

Keywords : Digital Media Art; Game Design; Influence; Research

In the era of digital media art guiding the production of game works, the hardware technology of digital media is the basis for determining the level of game design and production. When the basic level of hardware meets the requirements, the artistic creation of the designer and the skill level of the game’s main creative team determine game production. Secondly, in game character modeling, animation design, game scenes, game lighting effects, digital media technology is used for game design artistic creation. For game production, it can qualitatively improve the effect of game works in terms of production rate and production picture quality.

1. Digital media art related to game design

The development of digital media art is based on the update and iteration of digital media technology. Digital media technology mainly relies on a variety of electronic information terminal equipment to display humanities and art and communication design content. The whole development process is guided by technical foundation and humanities and arts. For game designers, mastering the production technology of digital media art and a rich sense of artistic creation are the keys to making good game works. In the entire process of game design, from programming to art design, digital media technology is needed. Whether it is the game engine’s support for game operation and game picture quality, or the application of two-dimensional and three-dimensional graphics software required for the art design and production of early game characters, digital media technology is required to provide an operating platform in the field of hardware and software.

From the perspective of game engine applications of digital media technology, the latest digital media technology can provide good services for the screen resolution, screen substitution, and screen experience of game design. In the production of 3D models in 3DS max, Maya, Zbrush and other software, through the production of digital models from low to high models, the object model to

Copyright © 2021 Jiayi Yao

doi: 10.18686/ahe.v5i2.3369

This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

be designed is refined to the degree of visible subdivision of the hair. In addition, in the version update of Zbrush in 2021, combined with the technical advantages of MD and UV for functional integration, Zbrush's high-precision design for model making is more versatile after fusing cloth calculation and texture technology. In addition, the lighting application software and rendering software play an important role in the art rendering of the game model's appearance color design, image design, and light design in terms of the visual art expression of game design.

Without the support of digital technology, the expressive power of digital media art will have nowhere to be developed. The success of a game, the expressiveness of art and the technical level of media technology are all determining factors. In terms of the art design of game design, the two-dimensional and three-dimensional modeling design of the model and the scene construction of the model props are the first process, followed by the use of light and shadow under the leadership of lighting software, and then the visual effect processing of the rendering software on the model surface. Next is the action capture and design of the game characters, the whole process is completed on the electronic terminal of digital media technology. It can be said that the technical foundation of digital media art is the key element for the smooth completion of the entire game production process.

2. Advantages of digital media art production in design games

Digital media art is a combination of digital technology and art design. It is a discipline that uses digital technology and knowledge in the field of network multimedia art to carry out comprehensive skills and knowledge. The subject design has a wide field and belongs to interdisciplinary. In the discipline setting of colleges and universities, it integrates multiple disciplines such as digital media production and design, digital media art, digital media design and production, digital space art, and interactive media design. This discipline has natural technical advantages in game production. Game production and design requires strong art skills. The level of 2D hand-painting and 3D modeling and texture mapping directly determines the art level design quality of game production. Usually in the production process of modern game design, the application of game art design has been covered by a full range of digital media technology development from the creation of original character paintings and original scene paintings to the later game UI, game action design, and game special effects design. In short, game design can realize the whole process of service from the idea to the final product in the software operation of digital media.

Since digital media technology can realize comprehensive digital production in the whole process of game production, most artists will also choose to convert the way of game production to the computer terminal workbench in all directions, using electronic hand-painted tablets (digital tablets, digital screens). For game character design and game texture drawing, and especially in the application of timely rendering technology, digital media technology can simulate lighting in time, and display the effect of light on the model draft in the computer's 3D software.

In addition, the application of digital media art technology for game creation has a big advantage, that is, special effects production in the later stage of the game and game design after the completion of the game product, including two-dimensional beauty posters and three-dimensional CG posters. All in all, the digital art's technical propaganda advantage is also the core advantage of matching game design. For example: using digital media art PS, AI, game original painting and character design and production; using Pr, AE, Edius for network animation film story script shot editing, special effects editing, plot editing and then animation promotion.

3. Application of digital media art in game development and design

Digital media art integrates artistic creation and digital media technology. In the design and application of game development, it is basically an expanding application in these two aspects. For example, in the engine editing scene, the global lighting effect is instantaneous. It is necessary to technically make the computer performance of the rendering device not be affected by artistic editing, and it is also necessary to make the game network operation to the computer performance in the programming technology. The system effectively saves. Otherwise, the data files will become very large in the production and operation of the entire game, which is a great test for the low-end computing power of the computer and the smoothness of the graphics card.

At the technical level, all 3D games are developed based on DirectX technology, covering all aspects of game production software, model textures, and game engines. DirectX is a multimedia programming interface created by Microsoft Corporation,

referred to as DX. It is widely used in the technical development of Microsoft Xbox 360, PlayStation 3, Microsoft Xbox and Microsoft Windows. The current version of DX 11 is supported by Windows 7, 8, 10, and Vista. As hard drive software, DX provides game designers with a unified standard hardware drive system to enhance the computing power of 3D graphics support. DX is not a simple API graphics system. Its core system includes multiple components such as Direct Graphics (Direct 3D+ Direct Draw), Direct Input, Direct Play, Direct Sound, Direct Show, Direct Setup, and Direct Media Objects. It has a wide range of uses and provides a complete set of digital media data interface solutions for game engines. Such as Direct 3D (graphics package), Direct Draw 2D (graphics package), Direct Play (support for multiplayer online games), Direct Input (support for mouse, keyboard, joystick and other game controllers), Direct Sound (support for sound effects), Direct Show (media stream architecture support), Direct Setup (installation support), etc.

In the game project, all the visual content of the game player basically belongs to the category of game scene production. Game-related game plots, game play, task setting operations, level modes, and character carriers need to be built and constructed in game production software. The success of a game is indispensable to the support of digital media technology and the hard work of game scene producers. From the perspective of personnel organization, the successful production of the game is completed by a research and development team including program editors, local editors, planners, props and scene producers, etc. The entire R&D process of a game needs the full support of the technical application of digital media art. The technical application of digital media includes scene planning, 2D original painting, ground editing and prop production, and post-processing (including the application of lighting technology) the various process links.

4. Conclusion

To sum up, digital media art combines two parts, digital technology and artistic creation, and plays an important role in the modern digital production process of game design. The completion of game works includes the design and development of art creators in game art modeling, animation design, scene building, plot placement, programming, and various digital process effects and artist creations brought by digital media technology itself. It is various technology derivatives that match the ideas. To a large extent, the technicality and artistry of the two are complementary. The technological development of digital media has promoted the production efficiency and aesthetic mode of game design, and the level of game screens has also been updated in the iteration of technology. It can be said that the technological advancement of digital media art makes the design of game characters more vivid, and the details of the image are becoming more and more abundant.

References

1. Zhan H. The influence of digital media art on game animation design. *Chinese and Foreign Entrepreneurs* 2020; (07): 81.
2. Zhou S, Wu X. The influence of digital media art on game animation design. *Image Vision* 2016; 17(Z3): 49-50.