Practical Application Analysis of 3DMax in Interior Design

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Abstract. With the development of society and technology, new technologies in various fields are emerging one after another. 3DMax is one of the world's top 3D software products from Autodesk, plays an important role in all design fields. The application of 3DMax in the field of interior design is conducive to accurately and intuitively transforming the designer's creative ideas and design concepts, effectively improving the quality and efficiency of interior design projects. This paper is based on the relevant overview of 3DMax software applications, analyzing and studying the practical application of 3DMax in interior design.

1. Introduction
Modern interior design is different from traditional interior design. It not only has certain requirements for the designer's design level, professional quality, innovative creativity. Moreover, the designer is required to accurately express the creative ideas of the design with the design drawings, and can use the modern technical means to build the ideal "indoor space" for the user to be intuitive, accurate and three-dimensional. The 3DMax software version has been updated many times so far, and it has been relatively complete and mature, and can adapt and meet the design needs of design workers in various fields. With the continuous development of the theory and practice of modern interior design, 3DMax applications with 3D animation and rendering functions have become an inevitable trend in the development of this field. It can effectively help interior design workers to build the concept of "space", and to express the interior design ideas and ideas around the design ideas intuitively and stereoscopically, and further enhance the quality and value of interior design.

2. DMAX Software and Interior Design

2.1. 3DMax
3DMax is 3D Studio MAX, a PC-based 3D animation rendering and production software developed by Discreet (later merged by Autodesk) for modeling, animation and effects, scene rendering, and more. It is widely used in 3D animation, graphic design game design and architectural design with its powerful image processing and animation production functions. As one of the world's top 3D software, 3DMax software has three distinct advantages: First, cost-effective, 3DMax software production is powerful, but the price is relatively "close to the people", which can greatly reduce the production cost of the production company, and this software has low requirements on the hardware system, and the general configuration can meet the application requirements and reduce the production cost; Second, there are many users. There is no doubt that 3DMax with powerful 3D production and rendering functions has been widely used all over the world. With the rapid development of modern interior design, the number of people using 3DMax in China is increasing. There are also many web tutorials on 3DMax software applications. Users are more conducive to learning and communication, which is more conducive to the development of 3DMax software in the domestic practice, so that the results benefit more design workers; Third, it is simple and easy to operate. The 3DMax software mainly includes several areas such as menu bar area, command panel, trying to go, drawing area, etc. The
application production process is simple and efficient, and the subsequent high version operation is relatively simple. This is also the reason why 3DMAX is designed. The field is a key factor in the rapid adoption of sister applications.

With the update of the 3DMAX version, its performance in lighting, materials, modeling, textures, cameras, etc. has been significantly improved, and the visual effects of the design have increased accordingly. There is no doubt that 3DMAX plays a prominent role in interior design. It can intuitively interpret the designer's design ideas and creative thinking with realistic and realistic texture maps, lighting effects and materials, breaking through the two-dimensional limitations of graphic design drawings. To make interior design work more efficient and more quality.

2.2. Interior Design

The interior design is based on the nature of the building, the environment, the spatial location and the corresponding standards. According to the architectural design principle and using specific material and technical means, it creates a comfortable and functional way to meet people's material and spiritual needs. With the rapid development of social economy, interior design has been widely concerned as an important discipline to improve people's living standards and spiritual life. Relevant research and practical work has been rapidly launched. Although interior design is still a relatively young subject in China, Development has accumulated a certain amount of results so far. Interior design is a value-added preparation for deep processing of existing building interior space for specific construction purposes. It requires designers to consider the technical and economic feasibility of material materials, requiring designers not only to have engineering skills. Knowledge on the art, and at the same time, there must be artistic theory and skill support. Specifically, interior design work involves all related objects in the room, including doors and windows, lighting, curtains, furniture, decorations, environmental control systems, materials, etc. Designers need to plan and plan these existing materials according to the design ideas. It aims to achieve the practicality, functionality, artistry and beauty of the indoor environment at the same time. At present, it is suitable for the rapid development of interior design, as well as the multi-development of intelligent, integrated and compatible computer technology. More professional auxiliary software technology is applied to interior design, including CAD, 3DMAX, VRay, Photo Shop and many more. The introduction of these computer-aided software can further enhance the artistry and creativity of the design work, help the designer to simulate the real environment, display the design thinking and design scheme, and the interior design is more diverse and novel.

2.3. DMAX Software Application Requirements in Interior Design

2.3.1. Pay Attention to the Gap between Software Effect and Actual Effect

In interior design, the designer's design ideas and thinking ideas need to be presented through 3DMAX. In this process, the designer relies heavily on the design software, and the application of 3DMAX software always aims to accurately and intuitively express the author's design intent. Make the design effect operability and achievability in actual design and construction. In interior design, the designer's design ideas and thinking ideas need to be presented through 3DMAX. In this process, the designer relies heavily on the design software, and the application of 3DMAX software always aims to accurately and intuitively express the author's design intent. The design effect operability and achievability in actual design and construction.

2.3.2. Enhance the Designer's Self-cultivation

The application of 3DMAX software in interior design does not mean that the 3DMAX software application capability can complete high-quality interior design. It also has high requirements for the designer itself, and will not be designed using software. It requires modern interior design workers to have a solid theoretical foundation and rich practical experience; a broad cultural perspective and a unique perspective of the problem; an innovative spirit and a keen sense of art; a certain aesthetic taste and aesthetic ideal; Responsibility awareness, and strive to make the design works beneficial to the society, can enhance people's aesthetic ability, can make people happy and satisfied, can reflect and
summarize the characteristics of the times. Computer-aided software technology such as 3DMAX brings great convenience to interior design workers, but it is only using tools, not the purpose of use. Good designers should have their own methods, opinions and logics, which should be reasonable. Use software tools to achieve your own ideas and aspirations, rather than relying heavily on software tools to achieve your own design goals [5].

2.3.3. Integrate Advanced and Innovative Design Methods
The powerful and easy-to-use 3DMAX software has led many interior design workers to form a “routine” mindset that makes it easy to draw complex indoor renderings using 3DMAX software in accordance with the inherent design thinking. Of course, this work is highly efficient, but its works have no personality and style. Most of them are template copying and imitation. They don't have their own drawing ideas, and they lack innovation. This also leads many designers to use only software. Focusing on the operation control of the screen, texture, lighting, color, etc., and lack of research interest in the software itself, cannot fully address the comprehensive application and development of the 3DMAX software. In this regard, interior design workers must realize that 3DMAX software is not a shortcut, but a tool to realize their own creative thinking, tools to help create and build their own unique environmental space, should transform design thinking in 3DMAX applications, consciously gradually incorporate advanced and innovative design methods to make software use more superficial and superficial, making design works more artistic [6].

3. Practical Application of 3DMAX in Interior Design
3DMAX can provide 3D modeling, animation demonstration and many other functions for interior design, which is more conducive to the design and construction of color, space and structure, making the design creativity and design ideas of interior design more achievable and operable. In modern interior design, the application of 3DMAX transforms the designer's creative thinking into a virtual reality scene. As a result, the design effect can be more intuitively perceived and considered, and the most perfect interior design works have been achieved [7].

3.1. Modeling and Rendering with 3DMAX Software
3DMAX can play a powerful 3D model making and rendering effect in interior design. It can simulate the decoration, materials, lighting and so on. It has better visual effect than the flat design manuscript, which makes the design result visible. Conductive to presenting better design results. 3DMAX has powerful modeling capabilities and includes more advanced modeling tools in addition to the underlying modeling tools. The basic modeling tools include modeling elements such as cubes, cylinders, and spheres. These conventional modeling elements can basically satisfy the structural design of the room in the interior design; advanced modeling tools include irregular waves, particles, and the like. Modeling elements, which have a prominent role in rendering decoration, can make the design renderings more realistic and stereoscopic. In addition, designers can use 3DMAX to create more advantageous 3D graphics according to their own design ideas and ideas, such as selecting application distortion, engraving, drilling, swing and other design functions to achieve partial or overall multi-angle changes in the design, breaking through the limitations. Sexual design, successful construction of three-dimensional model, three-dimensional model of interior design model [8].

For example, as shown in Picture 1, when using 3DMAX to design the bedroom, according to the architectural design, input the window size, TV cabinet size, mural size, bed size and other related parameters in the drawing interface, the software will automatically draw according to the relevant parameters. Form the initial model design. After the initial model is obtained, the model needs to be modified. The method is to place the model in the view area and optimize the model design by swinging and rotating adjustment to make the building model more scientific and practical. Then, according to the design needs, add various materials to the model, such as TV sets, lamps, curtains, etc. The addition and rendering of these lightweight materials can enhance the overall effect of the model design, which is conducive to building more intuitive and more authentic. The interior "space" is an interior design that expresses the environment art.
Based on the above design operations, in order to achieve a better quality production effect of the
design renderings, you also need to use image processing software for the next step. At present, the
image processing software commonly used in the design field, including the interior design field is
Photoshop. This software has powerful image processing functions, and scales a model map for
optimization design and precise modification of various aspects such as mapping, color adjustment,
and sharpness adjustment. Combine multiple pictures into one picture, making the picture more
realistic and harmonious, making people feel as if they are there.

3.2. Using 3DMAX Software to Detect Real-world Gaps

3DMAX is conducive to the construction of three-dimensional space in interior design. It can
transform the design thinking in the designer’s brain and paper into a visual and three-dimensional
design rendering through command, material requirements and basic modeling. Predict the possible
gaps in actual operation and avoid errors in the design and construction of the post [9]. The most
notable features and advantages of 3DMAX software include the inclusion of a variety of control
software and platforms. Designers can control the design and implement multiple effects, helping the
design to create a more realistic simulation model.

For example, as shown in Figure 2, in the design of the living room, use 3DMAX renderings to
observe whether the color, space, home decoration, etc. are coordinated, overall, whether the size is
reasonable, achievable, and the problem of design is found by the angle switching function. Make
adjustments and corrections are in order to make the design more aesthetic and user-friendly [10].

3.3. Using 3DMAX Software to Increase Design Speed

3DMAX software can be integrated with other software, including CAD, making it simpler, faster, and
more comprehensive in design applications. The use of 3DMAX software includes three levels of content, the first level is the database access layer, that is, 3DMAX software combined with MS SQL Server 2000 as the central database management system; the second level is the software application logic layer, composed of a set of .NET components, is the application logic layer that implements the exchange of multiple applications and multi-tier databases mainly requires users to implement through Web Service. When using 3DMAX software for editing operations, pay attention to grasping the multi-view mechanism and clarify the relationship between view and structure to prevent visual mismatch on the operation interface [11]. In addition, the concept of spatial scale should be accurately recognized and grasped, and the scale should be correctly set according to the combination of strict scale standards and graphic structure to ensure the efficient application of 3DMAX software. The third level is the 3DMAX software management layer, that is, through the NET platform to achieve a variety of communication forms, users need to strengthen their own computer technology concept through their own computer browsing record table, constantly update the development model, colleges and universities use computer network running space and running terminal The server performs specific operations and strictly guarantees the security of computer network information in accordance with national standards and regulations. [12] Designers should be familiar with the basic operations of 3DMAX software applications to enhance and extend the operating efficiency and performance of the software.

4. Conclusion
With the rapid development of social economy and science and technology, the application of computer network technology and 3DMAX software technology in various design fields will be more extensive and universal, and it will become the new trend and leading direction of modern interior design development [13]. Interior design workers must have the basic operational capabilities of 3DMAX software applications, be able to properly apply and fully utilize the functional advantages of 3DMAX, strengthen the 3DMAX application concept, based on their own solid design expertise theory and practice, although creating a good implementation of 3DMAX applications, Continuously improve the capabilities and level of 3DMAX applications, so that software and design are perfectly integrated [14].

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