Information Sharing and Application of 3D Design Software in Interior Design

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Abstract: With the development of computer design software, computer design software with its real and fast characteristics can easily reflect the design concept and design plan. The effect of computer graphics is incomparable with traditional hand-drawing and other graphics techniques. The information exchange among various design software can make the architectural design and interior design more convenient and efficient. It is the development direction of architectural design in the future and the thinking and method of architectural design to apply a variety of software and realize information sharing in interior design.

1. Introduction
With the development of science and technology, modern people spend most of their time indoors, such as indoor work and study, going to sports venues and so on. The quality of indoor design environment directly affects people's comfort in life. Therefore, modern people attach great importance to interior design, hoping to improve the level of interior design. With the application of computer software, especially three-dimensional architectural design software in interior design of buildings, it can meet the needs of modern people for interior design and improve the three-dimensional design effect of interior space. The emergence of three-dimensional design software has gradually replaced the traditional manual drawing. The application of computer software to design reduces the workload of designers and improves their work efficiency. The application of computer software in interior design can be batch selected, duplicated or modified, which reduces working time, saves costs and improves efficiency.

2. Application of 3-D design software in interior design

2.1 Development of interior design technology
With the realization of more functions of interior design technology in the 21st century and the improvement of people's living foundation and quality of life, modern interior design technology also develops, which to a certain extent improves people's demand for modern design. Three-dimensional architectural design software improves the effect of interior space design and meets the requirements of modern people. According to people's living requirements, interior design realizes the space virtual of interior design on the computer platform. Three-dimensional rendering is fast and efficient. The application of three-dimensional interior design software has also greatly improved the effect expression, the exchange of design concepts and the modification of design schemes.

2.2 Three modules of house interior design
In the process of house decoration in the city, the designer will divide the actual work into three modules, namely, the formulation of construction plan, the approval of preliminary content and the
determination of specific construction plan. In addition, it will also include the design of housing
details, including the design of water, electricity and heating. In the traditional design process,
hydraulic drawings can only design details, and cannot fully use the overall content of the plane
graphics display. However, the use of computer graphics software can fully display the
three-dimensional structure of the house, and integrate the data needed in the design process into a
database, which is convenient for designers to access and select. And it can also complete more
advanced data sharing content. Therefore, such a design can fully reduce the time cost of designers to
the lowest level, and achieve unity and coordination in the design process. With the popularity of this
kind of software, designers can also use relevant design software according to actual needs, making
the design work more convenient and simple.

2.3 Functional characteristics of three-dimensional interior design software
Modern interior design software is divided into graphic design software, three-dimensional design
software and dyeing software. The main application software is shown in Table 1 below.

| Software type               | Typical software          |
|-----------------------------|---------------------------|
| Graphic Design Software     | AutoCAD / Photoshop       |
| Stereo Design Software      | 3D max / Revit            |
| Rendering Design Software   | Lightscape / V Ray        |

The design software list above is not limited to its classification, and the software has
three-dimensional design and related extension functions.

3. Interactive use of three-dimensional design software
The basic purpose of using three-dimensional design software is to simplify the design work, so that
the work efficiency can be steadily improved. If a simple working model can be built by software
before the specific work is carried out, designers can use this basic component to further refine the
work, and automatically form the corresponding plane and three-dimensional effect maps. With the
research of software technology and the further optimization of hardware, the corresponding design
software has been able to carry out part of the design intelligently, which can save most of the design
time and cost, so that designers can spare more time for conception.

3.1 Application of three-dimensional design software in interior decoration
In the process of house interior decoration, it can be divided into three modules: the formulation of
construction plan, the approval of preliminary content and the determination of specific construction
plan. Using computer graphics software, the three-dimensional structure of the house can be fully
displayed, and the data needed in the design process of the house can be integrated into a database,
which is convenient for designers to access and select. And it can also complete more advanced data
sharing content. Such a design can fully reduce the time cost of designers to the minimum, and
achieve the unity and coordination in the design process. With the popularity of this kind of software,
designers can also use relevant design software according to actual needs, making the design work
more convenient and simple.

3.2 The necessity of using three-dimensional design software
Modern people spend most of their time indoors, such as working and studying indoors, going to
sports venues for exercise, etc. The quality of interior design environment directly affects the comfort
of people's life. Therefore, modern people attach great importance to interior design, hoping to
improve the level of interior design. With the application of computer software, especially
three-dimensional architectural design software in interior design of buildings, it can meet the needs of
modern people for interior design and improve the three-dimensional design effect of interior space.
The application of computer three-dimensional design software can make virtual design of indoor
space on the computer platform, and the results are very realistic. Compared with the traditional manual drawing, the use of computer three-dimensional design software is very efficient, and to a large extent improves the efficiency of design modification, customer and designer design ideas exchange and graphics design effect.

3.3 Interactive application of three-dimensional design software
In the actual design process, multiple design software can be used synthetically and interactively. The combination of CAD and Revit can produce all parts of the architectural design section and three-dimensional graphics at the same time. Designers can also integrate the contents of each module, and can clearly and timely discover the shortcomings and major defects in the design. It not only effectively improves the efficiency of designers, but also fully guarantees the rationality and standardization of design.

4. Information sharing of 3D design software in interior design
When designing indoor effects with integrated application software, it is necessary to base on the flat elevation diagram in the software. When modeling the application software, the output results can be imported directly. The imported primitives can be drawn accurately and the layers are set reasonably. Thus, a lot of time can be saved when modeling after importing.

4.1 Design scheme by combining CAD software with Tinge building software
If the design of the overall structure and specific construction content of the office building only depends on the CAD software. There will be no three-dimensional drawings in the construction. The designer can only divide the whole building into many plane structures. For buildings such as CBD office building, which integrates many functions, the difficulty of design has increased dramatically. This type of building has a very strong sense of hierarchy. If only rely on graphic design, it cannot intuitively reflect the whole building. In addition, it will make designers need to consider the transformation relationship between many spatial structures. Such a design will make the whole design process very complex, and will increase the possibility of error indefinitely. In addition to the above points, this design process is less expansive. The failure of the builder to use the template designed by the superior effectively is equivalent to the repetition of the previous work in each design, which will result in a great waste of resources. Therefore, in the actual design process, CAD software should be combined with other three-dimensional design software in order to effectively reduce the time cost of design work and ensure the quality of design.

As a graphics processing software, CAD has a good working experience in dealing with plane graphics. But for the processing of three-dimensional graphics, it will appear inadequate. Although this software can also choose the windows, lights and the corresponding decoration and construction encountered in the design, but this software is for the rendering function of the design content, cannot make the designed works have a near-real viewing experience. In addition, when using various models in the database, we will also face very complex model retrieval content. And the use of Tinge design software can make up for the deficiencies of CAD in three-dimensional model design, through certain software rendering means to make the design work look closer to the real object, can provide a good basis for the development of internal structure adjustment for designers. Tinge Building Software and CAD Software are used at the same time, and the functions of the software are more powerful, which can realize the sharing of information. Tinge Building runs on the CAD platform and can use all the basic functions of CAD, as shown in the following figure.
As shown above, it can automatically generate side elevation and front elevation based on the design information of CAD. It can automatically mark the dimensions of column, self-contained wall, window, door, window and staircase. It simplifies the steps of interior design and achieves better interior design effect.

4.2 Realize the three-dimensional effect of office space by 3D MAX software

CAD has a good working experience in dealing with plane graphics. But for three-dimensional graphics processing ability is not satisfactory. Although it can choose the windows, lights and corresponding decoration and construction encountered in the design, the rendering function is weak and there is no near-actual viewing experience. The use of Tinge design software can make up for the deficiencies of CAD in three-dimensional model design. It can make the design works look closer to the objects through certain software rendering means, and provide a good development basis for designers to adjust the internal structure.

5. Conclusions

In the process of design, several common problems can be solved by combining several kinds of software. It can greatly save the time and cost of design work, and enable designers to have more time for product design. This paper analyses the use of information sharing in interior design of three-dimensional design software. It is found that the comprehensive use of different software for interior design can give full play to the advantages of three-dimensional software to a large extent, save more time for architectural design, and make the design drawings more three-dimensional and realistic. The continuous development of three-dimensional design software not only promotes the development of architectural design, but also promotes the widespread application of architectural design software and the continuous development of software science, which ultimately forms a virtuous cycle process, and can promote each other and develop harmoniously in this process.

References

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