Study on the Process Optimization of Interior Design Computer Renderings

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Abstract. This article in view of the interior design renderings produced by using teaching material in the production process is not reasonable, lead to figure out the problem such as slow speed, puts forward the solution to the optimization of rendering process including import CAD drawings, change the material and light set sequence and for lighting and material test, using the photon image to speed up the figure, will figure out the TGA format to higher quality of TIF files, such as material channel image is generated by the transformation plug-in, effectively improve the speed and quality of interior design renderings, enable students to master the method of making the practical higher, improve the teaching effect.

Key words: Interior Design, Computer Renderings, An Optimization Method

1. Introduction
People's material and spiritual needs are getting higher and higher, and their living environment requirements are also constantly improving, so they are constantly designing houses or buildings. Designers design interiors according to business requirements to meet people's needs. It can effectively improve the design efficiency by forming the interior effect drawing on the computer and designing with some auxiliary software such as PS. Users can also find problems in time, thus solving problems in time and facilitating the improvement of drawings (Table 1).

| Benefits of interior renderings   |
|----------------------------------|
| effectively improve design efficiency |
| timely find problems              |
| facilitates drawing improvement   |

2. The production procedure of interior design computer renderings
Renderings is a professional course for interior design majors. Interior design renderings are usually divided into hand-drawn renderings and computer renderings. Computer renderings with its real, fast and other advantages has become the trend of renderings production, its production is also a required course for students majoring in interior design. Generally, the process of making computer renderings...
is as follows: check the CAD drawings to get the size of the model, and use 3D MAX to build the model according to the size; Then use VRAR plugin to set model materials and scene lights, test materials and lights, modify materials and lights until they are satisfactory and render a large image. Finally, PHOTOSHOP is used for post-processing. The specific production process is shown in Figure 1.

![Flow Chart](image)

**Figure 1.** The flow chart.

Prior to the use of AutoCAD, relevant personnel should communicate effectively with customers, clarify user needs, and design the basic design scheme. AutoCAD is a professional drawing software, which is of great help to the production of interior design computer renderings. So if you want to skillfully use this software, it is necessary to carry out the actual manual operation, to understand the basic use of the software, the following is a simple description of the use process. We want to prepare work ahead of time, to master the basic drawing tools and common drawing commands and operations, the upper toolbar after open the page you can see, similar to the word - > then to edit and modify the graphics, and constantly adjust the proportion of the graphics layer - > established, graphics Settings of different hair length, color and proportion - > dimensioning, shall be clearly stated when finishing numerical - > for three view drawing operation - > draw axonometric drawing - > - > - > mesh modeling for three-dimensional modeling output printing and layout; Some more detailed things are
that the AutoCAD software system comes with a standard part library, and some screws and other small tools used in the interior design system can be provided in the AutoCAD part library, so as to make the interior design environment more detailed. The use of AutoCAD software can help designers improve design efficiency, any design pattern can be achieved in AutoCAD, reasonable use of this software will be a great help to the computer renderers, interior designers should master.

3dsMAX is a modeling operation on a PC side system. After installing the Vray plug-in, the rendering function is available. Modeling plays a cornerstone role in computer interior design. Only by doing well in modeling can we do a series of subsequent work well. Modeling operation also has a series of steps, first of all should according to the design drawings for the establishment and adjustment of the framework, and then add in the framework of the whole furniture, chandeliers and other components, and make the appropriate zoom processing, the various parts are placed in the corresponding position according to the design drawings to them after processing and polishing materials. Then carry on the processing on lamplight, want to combine lamplight and the environment that interior design comes out, adjust give proper atmosphere. Then add some appropriate flowers and small things in the frame, increase the cultural landscape, design to meet the needs of the indoor environment. At the same time, it is also necessary to use Vray to render certain images materially. Vray with ray tracing and global lighting renderer, can calculate the appropriate lighting effects, widely used in computer interior design production process.

So, you use professional rendering software like AutoCAD to create your images, and eventually Adobe Photoshop will come into play when you do post-production work on your renderings. There are also certain steps in the post-production of interior renderings. Firstly, observe and evaluate the interior design renderings, then adjust and improve the overall effect of some defects, then adjust the material and lighting effect of the decorations, and finally make the scene.

3. Problems existing in the process of making interior design computer renderings
To build a model, you need to input the size of the model. When using 3Dmax to build a model, you need to look for CAD drawings to know the size. When drawing, you often misread the size and don't understand the corresponding relationship between the drawing and the model. Since the renderings referred to in this paper are interior renderings, the view point is in the interior. The default lighting in 3Dmax cannot penetrate into the interior of the model. The interior is completely dark. You can't see the performance of the material in the setting unless you first put the light in the room. To see if the lighting and materials are set correctly, use the VRAY renderer for the render test. However, the material and lighting test focus is different, and the textbook uses the same rendering parameters. The author thinks that this method is not targeted enough, nor can it have a deep understanding of the role of rendering parameters. When rendering renderings, VRAY calculates the lighting first, then the materials, and finally the renderings. In this process, it takes a long time to calculate the lighting. The larger the drawing size, the longer the calculation time will be, so it takes time to directly render the drawing. Only learned to click the "Render" button to create the image. After rendering the image, save it as a TGA file with a channel map file, but the image quality of the TGA format is not as good as other files (such as TIF), and the channel map only supports 24 materials. If the model has more than 24 materials, then it is not applicable. In this way, students will not know how to deal with more than 24 materials in the future.

4. Improve the production process, and improve the speed and quality of renderings
In view of the above points, this paper makes improvements to the existing shortcomings of this process: Import CAD drawings [1] to build models in 3Dmax to help students understand the corresponding relationship between drawings and models; The original order of setting the material first and then the lighting was changed to setting the light first and then the material, so as to be suitable for the production of interior renderings and improve the students' ability to observe the scene; Separate the test of lighting and material to deepen students' understanding of the function of render parameters; In the formal drawing, the method of "hill rendering, hill rendering" is adopted to improve
the rendering speed of large images and help students master practical skills to improve efficiency [2]. After rendering the image, it will be saved into a better TIF format, and the material transformation plug-in will be used to generate channel map to overcome the disadvantage that the channel map in TGA format can only have 24 materials, so that students can master the general drawing format and drawing method. Figure 2 shows the improved flowchart. In order to better illustrate this process, the author uses a project -- making bedroom effect chart as an example to explain in detail how this process improves the effect of drawing and the quality of teaching [3].

![Improved flowchart](image)

**Figure 2.** Improved flowchart.

The first step to increase the import of CAD drawings and improve the accuracy of the model is to establish the model. In 3DMax modeling, the size of the bedroom model is determined by looking at CAD drawings [4]. However, there are many design drawings (plans, elevations, sections, details, etc.), manual searching is time-consuming and laborious, and in case the numerical values of the dimensions are wrong, the model produced will be wrong. Therefore, the author takes a more direct approach: import CAD drawings into 3DMax and build models based on the drawings. In this way, it can save time and ensure the accuracy of the size [5]. (1) Delete the redundant parts in the CAD drawings and save the drawings into CAD files separately. All the drawings of this bedroom are put in one CAD file, which is too many and mixed [6].

5. Conclusion
There are some shortcomings in the production process of renderings in textbooks, such as inaccurate modeling and poor generality, which lead to low efficiency of renderings. The measures adopted in this paper, such as changing modeling methods and changing production steps, make the production process more suitable for the actual work of interior design, thus effectively improving the production efficiency and quality of interior design computer renderings [7].
Acknowledgement
Research on the Ideological and Political Education Model of Art Design Courses Based on the Goal of Cultivating Young Persons by Strengthen Moral Education in Higher Vocational Colleges.

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