Research on Computer 3DS MAX Aided Environmental Art Design Based on Performance Technology and Visual Art

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Abstract. With the development of science and technology, computers have brought many changes to our life. For artistic design creation, the use of computer aided design can not only break through the traditional form of expression, more importantly, it can liberate our design thinking. Computer in visual communication, environmental design, animation and industrial modeling and other fields, has become an indispensable performance tool. Computer aided design as a new design tool, it broke the original design form, compared with the traditional technique of expression to its visual effect is distinct, picture abound change simple, accurate and fast operation, easy to modify and so on a series of advantages are obvious, that is why by computer-generated performance figure has a wide range of generally accepted by people in the area, in cultivating talents of higher learning design, computer aided design course has become an important part of art design teaching course system, for art design major students to master relevant professional auxiliary software has become an essential skill. 3DS MAX aided design can provide powerful real-time 3 d modeling, rendering and animation design, and other functions, it has been widely used in film and television, games, multimedia production, advertising, architecture, industrial design and engineering visual field, as a design student engaged in film and television media, advertising design and architectural design in the future, etc. At the same time, industrial design, architectural design, environmental art design, animation design and other art design related majors in colleges and universities have listed "computer Aided Design -- 3DS MAX" as a compulsory course, and its teaching reform is attracting more and more attention.

Keywords: 3Dsmax, Art Design, Environmental Art, Presentation Techniques

1. Introduction

In the face of computer aided design is widely used in environmental art design major, we should not only realize the instrumental nature of computer drawing software, at the same time more to realize that it is not only a common sense, the use of tools, it will be more level in environmental art design change people to the concept of environmental art design performance and cognitive. The production method of functionality brought by it will ultimately affect the design aesthetics and the orientation of
design thinking. Due to the rapid development of computer-aided environmental art design technology, the teaching lags behind. Therefore, appropriate reform should be carried out in teaching to cultivate excellent computer-aided environmental art design talents to meet the needs of social development[1].

As an important technical tool in the information age, computer has been widely used in the field of environmental art design and has rapidly impacted the traditional expression techniques. The development of computer technology to society and art creation has a significant role, the progress of the development of technology, aesthetic spurred the new visual taste, achieves higher and higher, only by constantly improve visual designer's imagination, creativity and performance ability, in order to satisfy the requirement of people is higher and higher to the visual arts. Many people learn all kinds of drawing software, which leads to the emergence of a large number of machine-like "drawing artisans" in the society, ignoring the artistic nature of computer-aided environmental art design works as visual arts. Artistic, human and diverse works are particularly important, which requires to improve the professional quality and artistic accomplishment of designers, into the designer's unique personality and deep emotion. In the performance techniques, combined with various performance techniques can be applied, to produce different styles of artistic works, so that the renderings more artistic, to meet the needs of customers, to meet the needs of the society. Only when the relationship between performance technology and visual art is handled well and the computer technology is better applied to the field of environmental art design, can the computer-aided environmental art design in Our country get a sustainable development, and will certainly obtain more considerable social benefits[2].

2. Application of 3DS MAX auxiliary Design in art Design major

In the field of 3D design, there are many powerful production tools and auxiliary tools, among which the most representative software such as 3DS MAX, MAYA, Sumatra, Lightwave, Rhino, etc. Among them, 3DS MAX has the following advantages from the perspective of mastery and range of use: First, 3DS MAX has relatively low requirements for computer hardware configuration. Since it entered the Chinese market very early, it is used by a large number of people, and it is easy to obtain relevant teaching materials, with low learning cost. Second, 3DS MAX is a legitimate software, relatively few software features, it is easier to grasp. Of course, compared with similar 3D animation software, the biggest advantage of 3DS MAX is that it has a large number of plug-ins, and 3DS MAX has a large number of third-party plug-in support, which is an incomparable advantage over other 3D animation software. Although it still has some shortcomings in its own way, almost all of them are supplemented by plug-ins, which play a great role in compensating the functions of 3DS MAX[3].

Table 1. 3DS Max interface consists of the following parts.

| 1. Title bar;  | 2. Menu bar;  |
|----------------|---------------|
| 3. Toolbar;    | 5. Drawing area; |
| 4. Command panel; | 6. View control area; |
| 7. Animation control area | |

3DS MAX is a practical course, which involves not only a large amount of knowledge, but also a wide range of levels. Whether it's scene renderings, 3D illustrations, or animations, the powerful features and flexibility of 3DS MAX are the best choice for creativity. Whether in graphic design or visual communication design, 3DS MAX auxiliary design breaks the previous limitations in space understanding and provides designers with a brand new form of artistic expression and space, so as to realize the infinite potential of creativity. Advertising design, book binding design, logo design and packaging design, their performance has broken through the formal space, multi-dimensional artistic expression is the goal[4].

3DS MAX courses in environmental art design major is very important and needed by using 3DS MAX software to create space, more intuitive angles to observe the effect of perspective, flexible change material and the effect of lamplight, compared with the traditional hand-painted saves a lot of
repetitive work, relatively more flexible, comprehensive, detailed and realistic expression "idea", convenient to designer to continuously improve and perfect.

![Figure 1. 3DS MAX application example.](image)

3DS MAX courses can also be widely used in animation majors. 3DS MAX can show incisively and vividly from simple geometric model to complex character model and character dynamic setting, from single props to complex scenes such as roads, Bridges, buildings, tunnels, parks and other landscape and scene design. In addition, it also has a good performance in online games, advertising titles, program packaging, film and television special effects, and dynamic simulation.

| Roads | Bridges | tunnels | buildings | parks |
|-------|---------|---------|-----------|-------|

### 3. The development trend of computer aided environmental art design

People pay more attention to computer technology, try their best to master all kinds of drawing software, spend a lot of time on models, materials, lighting and various rendering techniques, and neglect the artistry of the final effect. Computer aided design (CAD) is a borderline subject that combines science and art and computer and art design. The rules of visual art creation, rules of form and aesthetic methods of COMPUTER-aided design are the same as those of traditional art design. The so-called visual art is an artistic form that brings the objective content into the subjective mind and presents it by objectifying through people's visual perception. Some aesthetic researchers believe that, from the perspective of the aesthetic subject, art cannot be separated from the creator and the appreciator, which both need to create aesthetic objects through certain senses and corresponding perceptual material media, while the latter can achieve aesthetic pleasure. Therefore, as a visual art, computer-aided design works should not only depict the scene realistically, but also make the viewer achieve aesthetic pleasure. There is no denying that people's appreciation level is constantly improving, seeking for new, different visual taste is also getting higher and higher.[5]

At present, the style of computer architecture renderings is single, which cannot satisfy the visual taste of the public. Computer architecture renderings are both techniques of expression and visual art. Designers create aesthetic objects, to make the audience to achieve aesthetic pleasure rather than aesthetic fatigue. Therefore, according to the current development of computer-aided environmental art in China, the future computer-aided architectural renderings should be artistic, human and diversified.

### 4. Computer aided environmental art design is the fusion of technology and art

Computer graphics technology provides designers with a new form of artistic expression. Computer-aided design (CAD) has opened up a new field of design, and computer graphics technology provides designers with a new form of artistic expression, shorting the distance between designers' creativity and design works, which greatly improves the controllability of design behavior, the feasibility of design means and the producibility of design works. Since the emergence of computer graphics technology in the 1960s, it has provided designers with a "robot hand". With the emergence and continuous update of various graphics software, designers' design ideas can be expressed through the computer. It can not only show all kinds of hand-drawn effects, but also achieve
visual effects that are difficult to be realized by hand-drawn effects. It is not only convenient and fast to complete by computer, but also the effect is closer to the real scene. Through computer commands in the 3d drawing software to build models, light setting, material editing, etc., and finally in perspective can be calculated by the computer, accurate perspective view, can also according to customer requirements change viewing angle, material, etc., from a different perspective to observe, review, modification works, greatly improve the design of authenticity and foresight. According to statistics, a design work from the design conception to the completion of the work, the proportion of modification is about more than 70%. The convenience of computer modification can simplify the tedious modification process. Due to the high efficiency and accuracy of computer, it provides designers with a new form of artistic expression and space for expression, which opens up the potential of designers' creativity and improves their expressive force and work efficiency.[6].

References
[1] Fan Guohui. Teaching Reform and Practice of COMPUTER-aided Design Course 3D MAX in Higher Vocational Education [J]. Career Circle, 2007.
[2] Wang Weihua. Cultivation of Innovative Ability in 3DS MAX Teaching [J]. Success (Education), 2008.
[3] Zhou Jia. Role Analysis and Teaching Thinking of COMPUTER-aided Design in art Design curriculum system [J]. Popular literature and Art (Theory), 2009.
[4] Huang Yongyuan. Discussion on the teaching of 3DS MAX [J]. Career, 2010
[5] Zhang Lin. Teaching application of 3DS MAX course in interior Design Major [J]. Operations Management, 2010.
[6] Tan Li, XIA Yuansheng. Application and Teaching Thinking of 3DSMAX in art Design Major [J]. Going Abroad and Employment (Employment Edition),2011.