The Application of Computer-aided Design in the Art Design Teaching

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Abstract: With the rapid development of software technology, computer-aided design has been widely applied. Computer-aided design is the basic curriculum of art design disciplines. Computer-aided design is a basic skill that must be mastered in the study of art design. The extensive use of computer-aided technology in art design teaching, deepening the application of computer-aided design in the teaching of art design is the only way for the rapid development of art design education.

1. Introduction

Computer aided design was introduced to China in the 1990s, and it has played a very positive role in the development of design industry and design education. However, there is still a big gap between us and developed countries in these areas. No matter the development of computer-aided design tool software or its application in the industry, there is a big gap. For example, Rhino, Maya, 3dsMAX, etc. in 3D software are very good in function. By constantly updating the version, the functions of these softwares are very powerful, but the operation is very complicated. Flat graphic aided design software is easy to master, such as engineering drawing design software AutoCAD, photoshop and so on. With the development of professional software, many professional design courses for design majors have undergone tremendous changes due to the adoption of computer-aided design [1]. In various space designs, AutoCAD has been widely promoted, making the traditional drawing method gradually fade out. In the interior design and product design and other majors, drawing renderings with computers has become a compulsory course for students [1]. In the whole process of graphic design, computer-aided design and other courses in advertising graphic design, the extensive use of software and Tablet has largely replaced traditional hand-painting.

2. The advancement of computer-aided design

With the expansion of computer-aided design in professional design classes, its influence on professional design courses and basic courses is becoming more and more obvious. However, due to the limitations of traditional design expression techniques in drawing, it may not be able to fully cultivate our imagination [1]. In the professional design class, by means of computer-aided design, students can get rid of the constraints of material technology in the production process, and shift the focus of learning to the creation of thinking, which truly reflects the characteristics of design education.

Through the use of auxiliary design software, the efficiency of homework production is greatly improved, and the design expressions and expression means are more colorful. At the same time, the students' image thinking ability and design creation ability are further strengthened and improved. At the same time, electronic documents are also convenient for distance education [2]. Moreover, computer technology can realistically simulate reality, organically integrate teaching content, and is easy for students to accept and understand. However, considering the comprehensive development of students' quality, considering the irreplaceability of traditional hand-painted expressions for students' comprehensive performance ability training, the combination of hand-made and computer-aided design has become the design of various art design colleges. A teaching model commonly used is in basic courses.

Computer-aided design also has an ineviTable impact on the basic teaching of Chinese art design.

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In the actual teaching, it can be found that students with relatively high level in computer-aided design often have excellent painting skills [2]. At the same time, many excellent designers have also proved from theory to practice. In a sense, the collision of traditional craftsmanship with modern high-tech technology has produced more and more outstanding works. It can also be said that how culture, art and technology can better penetrate each other and promote each other is the problem we need to pay more attention to.

3. The advantages of computer aided design in art design teaching

Computer-aided design is an ineviTable outcome of the teaching of art design. The advancement and innovation of this technology has in turn opened up a broad space for the development of art design education in colleges and universities, making the field of design art and its display forms diversified. Through teaching practice, the use of computer-aided design for teaching has a good practical significance for the teaching of art design in colleges and universities.

3.1 Improve student interest and efficiency.

In view of the low starting point and low self-control of college students, the use of computer teaching can effectively improve students' interest in learning, attract students' attention, and students' special love for computer media makes students in the course [3]. The classification will be more interested in the use of computers, and the course will be psychologically divided before the start of the course.

Compared with the computer-difficult code, students are tired of learning. Art design students do not need to learn the code. Instead, they can use computer-aided software to design pictures or videos. During the design and modification process, students It is conceivable that the auxiliary design image via computer software will eventually reach its most satisfactory state step by step, and enhance the interest in learning in the imagination of the effect diagram [2]. The use of computer, multimedia and network technology in professional teaching can overcome the shortcomings such as poor self-control, laziness, etc., correct the learning attitude and improve learning efficiency. In addition, for college students, students are not patient enough, so for some courses with more repetitions, students have become tired of learning and confrontation in repeated production.

3.2 Rich in creative forms and visual images.

The combination of traditional design art education and advanced computer-aided design is the need of art design teaching development, and also the need of social development [3]. Computer-aided design technology is applied to the creation of design art, so that art design is constantly change their own design concepts and expressions, while affecting the audience's aesthetic standards and appreciation in a visual form, as shown in Figure 1.

Fig.1 Computer aided art design

College art design students in the training class with the help of computer-aided software's own

advantages and their own creative thinking, combined with the theoretical knowledge of the guidance, through the application of computer-aided software technology to improve and enrich the creative point, It not only stimulates the students' inspiration design, but also extends the students' design thinking, making the students' design ideas and ideas more bold and extensive [3].

3.3 Update the teaching system and concepts.

Due to its special discipline, the art design teaching is more visually presented to the audience and resonates and interacts with the audience through visual forms. Therefore, the application of computer-aided technology makes art design no longer just a traditional form of expression, but gradually becomes a thinking concept and digital design art, which not only promotes the renewal of art design education system and design concept, but also expands the university [3]. The field of basic theory teaching in art design has also realized the combination of art and technology, and solved the problem of how to use multiple visual forms of teaching.

4. Integration of computer aided design and art design courses

It is imperative to strengthen the art design education in colleges and universities, and the integration of computer-aided design and art design courses is the key. The extensive use of computer technology in art design teaching, the close integration of computer technology and subject teaching is the only way for the rapid development of art design education.

4.1 The meaning of integration.

In the early 1980s, computer-aided design has been widely used in the fields of graphic art, decoration, environmental art, industrial design and so on. The computer liberates the designer's hands from heavy, slow and repetitive work, deepening the artistic creativity of the person and enriching the final visual art effect. Today, computers has become popular as an aid to art design. Digital art such as web design, multimedia art design, CD-ROM disc design, video art design, and animation art design are developing at an amazing speed. , showing a vigorous vitality and strong vitality [4]. In today's job advertisements for all design talents, there is no exception that applicants must be proficient in computer design. This puts new requirements for our design education: students who are trained in the school design profession must not only master the basic knowledge of art design before entering the society, but also must master the necessary computer-aided design skills to improve their job search.

4.2 The method of integration.

Computer-aided design is the basic curriculum of art design disciplines, so computer-aided design should be placed on the same level as traditional art design (decorative design, environmental design, fashion design, industrial design). It is the basic skill that must be mastered in the study of art design [4]. In painting, the tool for depicting multicolored pictures is a pen. And a computer system is the "pen" in the hands of designers, but this "pen" is particularly powerful. Computer technology can produce ever-changing artistic effects, while at the same time saving a lot of time and energy. Therefore, computer-aided design teaching must be carried out throughout the art design teaching. We should develop a computer-aided design course syllabus in conjunction with the widely used graphics applications (Photoshop, CorelDRAW, AuToCAD, 3D MAX), office software (Microsoft Word, Excel, PowerPoint) and art design teaching rules, and invest in the creation of professional multimedia. Computer room, training or hiring experienced teachers with practical experience [5]. In this mode, art design teachers and computer teachers are taught independently, but the two courses can be handled in a row, staged communication, and the two are interspersed to achieve the purpose of integration.

5. Application of computer aided design in the teaching of design art

In view of the basic situation of computer-aided design teaching today, and combined with the actual teaching experience, this paper proposes the following application measures.

5.1 Prepare the course content fully.

Fully preparing the course content is the top priority of the entire teaching process, and it is also the key to continuously improve the teaching skills of teachers. Teachers should continually update themselves and pass on the cutting-edge knowledge that is more applicable to today's society [5]. In the process of explanation, we should explain the relevant commands in detail, so that students have a general understanding of the software, and should not be one-sided teaching just to make an object. To re-use commands through the production of multiple objects, this can expand the student's thinking. Let students train in groups, two or more groups, which can train students' communication and coordination skills, more in line with the actual company's design team configuration [5]. Secondly, increase the opportunities for teachers to practice and learn in the enterprise, so that they can better combine the actual teaching of computer-aided design to supplement the knowledge outside the textbook.

5.2 Add expertise.

Most of the teaching process of computer-aided design is that the teacher demonstrates in front of the computer, and the students operate by watching and step by step. Therefore, in the process of teaching, you should add more professional knowledge. For example, when explaining CAD indoor furniture, you should ask more questions about the size of the furniture, and expand to what kind of furniture size is more suiTable for people to live and use. This is an organic combination of ergonomics courses [6]. You can also explain the problem of decorative materials when it comes to 3DMAX material production. For example, ask students what kind of items they have seen, whether it is stainless steel, white steel or frosted steel. In what kind of space and scene, I have seen these. Materials, this is an organic combination of decorative materials and construction courses [6]. In this way, the combination of software and expertise can be better accomplished. Students are more likely to discuss, research, and analyze, and they can add deeper memories of the use of computer software and expertise. Teachers use their own professional knowledge and life-oriented design to teach students, from the lack of understanding, from simple imitation to practical operation software, and interested in professional knowledge, can also promote the development of the curriculum.

5.3 The actual project is integrated into the teaching.

Many of the majors in design art can be well integrated into practical projects, which also allows students to quickly understand every aspect of the actual project and what issues should be focused on in different aspects. In this way, students can successfully carry out design practice in the face of actual projects, and can use their inspiration and ideas more rationally and scientifically. Teachers play an important role in the teaching of computer-aided design. Teachers should provide practical design projects for students to practice, and ask students more questions, simulate the dialogue between the two parties and the design company's environment, so that students can effectively cultivate applied talents [6].

5.4 Go to outside of the classroom and visit the site.

In the traditional teaching of computer-aided design, the renderings drawn by the students are mainly based on pictures collected by the network. Teachers can combine the actual venues to lead the students into the real scene, from the scale to the actual renderings. This immersive teaching method is more vivid, allowing students to more intuitively understand the space and structure of the entire house, and master the sense of scale brought by the space when modeling. In addition, the layout of the lights in the design is particularly important. The lighting layout in the interior design needs to be very precise. If the position is too low, glare is easy to occur [7]. The combination of point light source, surface light source and natural light needs to enter the scene to feel the configuration

and design of the light. The way out of the computer room and entering the scene allows students to make better use of the software to create renderings, laying a solid foundation for the future.

5.5 Reasonably allocate teaching content and pay attention to the application of new software.

Reasonable distribution of teaching content is an important guarantee for students to better master computer-aided design techniques [7]. Today, many colleges and universities have one-sided teaching of a certain software when teaching this course. This can't be combined with multiple software, or use a lot of time to learn modeling software such as 3DMAX, but not Vray rendering and post-production. As a result, many students' interest in learning has declined, and the difficulty of drawing will make them daunting about the work of professional courses. Therefore, in the teaching process, the software teaching content should be arranged more reasonably. The 3DMAX software must be combined with the Vray renderer to explain the process of the whole rendering process, and strengthen the matching application between the software. The curriculum of landscape architecture is generally the first semester CAD combined with sketch masters, the second semester is 3DMAX explanation. For this professional classmate, the frequency of 3DMAX use in the future is very limited. If you replace 3DMAX with VRAY rendering or Lumion rendering, it will greatly enhance the utilization rate of professional skills, and also more cater to the market demand for talents. Conducive to students' knowledge learning and intensive skills [7].

With the rapid development of computer technology, college design art majors must adapt to the needs of society to innovate and innovate. Only by combining traditional design art education with various computer-aided design, relying on the convenience provided by high-tech, giving full play to the professional skills of teachers, can we adapt to the needs of the current development of design art education, and cultivate the design talents needed by the society. .

6. Summary

With the development of science and technology, art design teaching should continuously expand the technical content, activate students' thinking, activate students' creative inspiration, teach basic theories, and demonstrate successful examples. This is also the goal of design educators. Make full use of computer technology, apply computer-aided design technology to art design teaching, and use the methods of sound, electronic picture and electronic animation to display teaching content, which can greatly improve teaching quality and teaching effect. Renewing the traditional teaching mode and using technology to open up the art design teaching method in line with the development of the times has an important role in the design education of China and even the development of the design industry.

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