Application of Case based Teaching Method in Computer Aided Design Teaching of Art and Design

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Abstract. Case teaching method (hereinafter referred to as TM) is an effective TM to cultivate students' ability and improve their quality. The 21st century is the information age, computer-aided art design has become the latest means of artistic design expression. Through computer-aided technology, designers can express themselves through a new form of artistic expression, which brings profound changes to the aesthetics and thinking of art design. Therefore, we should integrate science and technology with artistic connotation, which will promote the sustainable development of computer-aided art design. Case TM is based on the needs of teaching objectives and content to select a typical example of a TM, which can better carry out art design teaching.

Keywords: Case Tm, Art Design, Computer Aided, Design Teaching

1. Introduction

With the rapid development of computer aided design (hereinafter referred to as CAD) software, its function is more and more powerful, which has been widely used in various fields, such as industrial design, web design, environmental art design, advertising design, film and television design, etc. In modern art design, CAD is an important part of modern design art, which is an important means of visual communication[1]. CAD provides a new carrier for art creation and art design, which provides a new form and space for artistic expression. Case TM is a typical example selected according to the needs of teaching objectives and contents. Through analysis and summary, we can adapt and process into teaching cases, which will guide students to participate in thinking, analysis, discussion, expression and other activities[2]. Through case TM, students can cultivate their comprehensive ability in specific problem situations. Case TM can increase students' interest in learning, which helps to cultivate students' comprehensive ability. By integrating theory with practice, we can reflect the practicability of the subject, which is conducive to promoting students to learn to communicate and cooperate[3].

CAD software reflects the progress and diversification of art design means, which is the basic skill to learn art design. CAD is a kind of technology, which is a method and means to make the design scheme as a result[4]. Commonly used CAD software mainly includes: photo0shop, flash, CorelDRAW, AutoCAD, 3dsmax, Dream weaver, fireworks, etc., which is suitable for various art design majors. In
practical learning, many students can master the application method of software, but they do not understand how to use software to complete various high-quality design tasks. Case TM is more suitable for software teaching, which can make students have a certain understanding of the comprehensive use of software in a short time. Through case teaching, we cultivate students' design consciousness [5].

2. The main characteristics of case teaching

2.1. Characteristics of heuristic teaching
Compared with the traditional classroom teaching, case teaching breaks the traditional classroom teaching mode of theoretical knowledge education through typical case analysis, which is conducive to the change of students' innovative thinking and the improvement of innovative skills. For a long time, the theoretical knowledge system of art and Design Majors in China is relatively perfect, and the skills and level of theoretical level are higher. However, in the actual operation process, most students lack practical ability. Through the effective use of case TM in art design teaching, schools can change the roles of traditional classroom teachers and students, which can help students improve their enlightening thinking consciousness and design ability. Through heuristic teaching, the school can achieve the goal of training practical operation skills [6].

2.2. Characteristics of Participatory Teaching
In the process of art design teaching, we not only need to improve students' theoretical knowledge system, but also need to cultivate students' practical operation ability. Therefore, in classroom teaching, teachers must combine theoretical knowledge with practical operation closely. Through case TM, we can improve students' ability of theoretical connection and innovation level. Through the analysis of typical cases, students can use theoretical knowledge to participate in case analysis, which can improve the enthusiasm of students to participate. Through the consolidation of theoretical knowledge, we can finally solve practical problems.

2.3. Characteristics of democratic teaching
Different from the traditional theory teaching classroom, the case TM establishes the position of teacher leading and student-centered in art design teaching, which can also promote the close cooperation between students and teachers. In art design teaching, students are divided into groups to analyze typical cases. Through the case study, we can clarify their roles and discuss freely. By putting forward opinions and suggestions, students sort out ideas and consolidate theoretical knowledge, which can strengthen practical skills and realize democratic teaching.

3. CAD based on case TM

3.1. Realization of interactive art works
The creation method is the product of history, which has the profound brand of the times and society. The interactive art works contain the common rules in artistic creation, which may be adopted by artists of different times, different societies and different nationalities. Art works are different from products, which will lead to the complexity of work design and weaken the creativity and originality of artists. The interaction design process model is the Royce waterfall model, as shown in Figure 1.
3.2. Desktop Virtual Reality Art Design
In terms of software, Superscape VRT is a representative product of desktop virtual reality art design launched by dimension international. It contains three main editors, namely shape editor, world editor and visualizer. Among them, shape editor provides interactive tools for constructing polygon objects in virtual environment, world editor is used to connect these objects with their motion or behavior in virtual environment, and visualizer provides performance stage of virtual environment. Through Superscape VRT software, we can carry out interior decoration design, as shown in Figure 2.

3.3. Network Virtual Reality Art Design
At present, the famous network virtual reality art design software has Cult3D, Anark and so on. Cult3D is a product of Cycore Company, which is the establishment of interactive 3D objects on the network. Cult3D can display the interaction of different events and functions in a visual way, which can control the rotation, movement, zooming and shrinking of 3D products on the Internet. The latest version of Cult3D can also add sound and operation wizard to objects, which can increase the richness of the presentation. The biggest advantage of Cult3D is the small amount of files, which can retain the beautiful texture and texture. With Cult3D software, we can create virtual space, as shown in Figure 3.
4. The implementation process of design teaching of case TM

4.1. Case design and selection
The key to implement case teaching is to select typical cases. Therefore, we need to use some representative cases, which needs to choose the best case from the perspective of teaching. In addition, the design and selection of cases must be difficult, which can stimulate the enthusiasm. In the selection of cases, the selected cases must be typical, authentic, targeted, interesting, educational and epochal. For example, in the late comprehensive design of "web design and production", students need to give a practical topic, such as making personal job search website. Teaching case design can stimulate interest. Therefore, more practical topics can enable students to quickly enter the role of development. Through the combination of web design and production knowledge, we can improve the interest in theoretical knowledge. In order to let the students master the knowledge better, we should explain the relevant knowledge before the case study. According to the students' actual level and acceptance ability, teachers can gradually and inductively exercise students' ability.

4.2. Case analysis and discussion
Case analysis and discussion is the most important step in case teaching, which is to organize students to analyze and discuss cases. Case discussion is usually conducted in groups. After the discussion, representatives are elected to speak and other students supplement. When students discuss, teachers should be able to listen and be good at guiding, which requires full affirmation of correct understanding and original opinions. At the same time, teachers should guide and correct the vague wrong understanding, which will guide students step by step towards the established goal of case analysis. In the course of Photoshop graphic design, the making of static logo is an important part. When introducing the characteristics of static logo images, teachers can prepare and display some typical static logo pictures in advance. By observing the characteristics of the pictures, students can discuss in groups and choose representatives to speak. Through observation and discussion, students can summarize the characteristics of these pictures. After understanding the characteristics of the static logo image, students need to submit the specific scheme of logo image production. In the process of analysis and design, teachers should constantly prompt and guide, which can make each student produce pictures with both characteristics and requirements.

4.3. Summarize the case
After the case discussion, the teacher should summarize the case first. Teachers should not simply draw conclusions on the results of the case discussion, but should evaluate the whole discussion. By pointing out the theoretical problems of the case and the lack of discussion, teachers can further guide them to think deeply. If necessary, teachers should make more detailed and in-depth analysis and discussion of cases, which will help students expand their thinking and broaden their horizons. Through the deep understanding of the case, students find out their strengths and weaknesses by combining their own discussion and teachers' summary.

4.4. Correctly handle the relationship with other TMs
Case TM is an advanced TM. However, Case TM can’t completely replace other TMs. On the one hand, the case TM can’t completely replace the traditional theory TM. The advantages of case TM in cultivating students' ability are obvious, but the traditional theory TM also has its own advantages. The case TM is not antagonistic to audio-visual teaching and on-the-spot observation, and each of them has its own strong points to achieve the training goal. Therefore, in the actual teaching process, we should optimize the classroom TMs. According to the syllabus, teaching content and the actual situation of students, teachers should choose and use different TMs, which can really improve the effect of classroom teaching. By improving the teaching quality, the school can cultivate new high-quality application-oriented talents in line with the development of the times.

5. Conclusion
CAD course provides systematic and professional education for art and design industry. Through the case TM, we can improve the students' ability of autonomous learning and exploration by using computers, which will help teachers change their educational views. Case TM reverses the roles of teachers and students in the classroom, which emphasizes that students are the main body of teaching activities. Therefore, teachers must mobilize the enthusiasm of students, which is the embodiment of the transformation from traditional teaching to modern teaching.

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