An analysis of 3Dmax modeling and drawing teaching in the professional direction of environmental design majors

Qingzhi Zhu*

Taishan University, Tai'an, 271000, China
**Corresponding author:tsxyzqz@163.com*

Abstract: *3Dmax modeling and drawing is a course that combines theory and practice very closely, and in the daily teaching of environmental and art design students in colleges and universities, this course, as a professional foundation, is necessary for every student to study. In the process of learning this course, the students' ability to read and draw buildings and construction drawings will be continuously enhanced. At the same time, students can also have stronger analytical ability and creativity in the process of image drawing, have more visualization of three-dimensional space, and improve their aesthetic ability. In short, this course is extremely important for students of related majors in colleges and universities. Therefore, in the actual teaching process, teachers of professional courses must continue to choose the most appropriate teaching methods to help students explore the relevant content, improve the quality and efficiency of teaching, to ensure that students can have a more in-depth mastery of the content of the course, and the relevant skills can be more flexible use.*

Keywords: *environmental design majors; 3Dmax modeling and drafting; college education; teaching exploration*

1. Introduction

Colleges and universities environmental design students graduated from the work engaged in will involve a lot of buildings, surrounding facilities and other related three-dimensional space environment, so colleges and universities will basically open a 3Dmax modeling and drawing courses to help students to the architectural environment and related drawings design, reading skills to master more in-depth. Students in the actual process of learning this course must master the relevant theory on the basis of a variety of practical attempts, so that students for the relevant drawing skills will be more pure, with the help of this skill design of three-dimensional space is scientific and reasonable. At present, the relevant teachers in colleges and universities in the process of teaching this course to students because of the existence of some inherent concepts, the use of the way there are some irrationalities, the need to further improve its enhancement, so as to help the relevant teaching can obtain more ideal results.

2. The difficulties that exist in the teaching of 3Dmax modelling and drawing in the professional direction of environmental design in colleges and universities

In the past, colleges and universities often pay more attention to the teaching of students in the process of training relevant talents, and do not have a full understanding of the application of students' future skills, that is, their teaching is detached from the actual production [1]. The content of 3Dmax courses in some colleges and universities may not fully match the market demand, which makes it difficult for students to adapt to the actual work needs of the industry after graduation. In this case, the teaching objectives set by the university and the actual social demand for talents naturally exists a certain difference. For example, society needs to master more practical skills of application-oriented talents, but colleges and universities to train talents often have a more solid theoretical foundation, but the application is not as good. Therefore, the later college in the process of teaching students 3Dmax modelling and drawing should also be on the corresponding teaching objectives for repositioning, to strengthen the students' theoretical knowledge and constantly combine the theory of their learning with actual production and practical activities to promote each other, so that this course really play a more practical application of value.

With the rapid development of science and technology, 3Dmax software and its related technologies are also advancing. However, the teaching content may not be updated in time, resulting in a mismatch between the skills learned by students and the industry demand. Teaching method innovation lacks sufficient practical opportunities. Environmental design majors emphasize the cultivation of practical ability, but they may lack sufficient practical opportunities in the teaching process, which makes it difficult for students to transform what they have learned into practical skills. Limited teaching resources, some colleges and universities may lack high-quality teaching resources, such as advanced hardware equipment, professional faculty, rich teaching cases, etc., which affects the quality of teaching and the learning effect of students. Students' basic skills vary. Due to the different backgrounds of students and their uneven levels of basic knowledge, it is difficult for teachers to do everything when teaching, resulting in some students not being able to keep up with the progress. Inadequate teaching evaluation system. An effective teaching assessment system is crucial to monitoring the quality of teaching and promoting student learning. If the assessment system is not sound, it cannot accurately reflect students' learning outcomes and teaching effectiveness.

In order to overcome these difficulties, colleges and universities can take a series of measures, such as improving the teaching mode and adopting teaching methods such as case teaching and project-driven teaching; updating the teaching content to keep up with the development trend of the industry; increasing the practical aspects and providing practical platforms such as laboratories and workshops; introducing excellent teachers and strengthening teacher training; optimizing the allocation of teaching resources and improving the level of teaching facilities; implementing layered teaching to meet the different learning needs of students; establishing a scientific and practical system for teaching and learning; and improving the quality of teaching and learning. students' learning needs; establish a scientific and practical evaluation and assessment system; establish an effective teaching evaluation system. students' learning needs; establish a scientific teaching evaluation system to ensure teaching quality. Schools can also establish a scientific teaching evaluation system to ensure teaching quality.

The difficulties in teaching 3DMax modeling and drawing for environmental design majors in higher vocational colleges and universities lie in the combination of theory and practice, the timely updating of course content, the full use of teaching resources, the care of students' individual differences, and the establishment of a teaching evaluation system. In view of these problems, improvements can be made by updating the teaching content, innovating the teaching methods and adjusting the teaching strategies in order to improve the teaching effect and cultivate high-quality technical and skilled talents who are more in line with the market demand. In order to overcome these difficulties and keep up with the development trend of the industry, the teaching content should be updated in a timely manner to ensure that students learn the latest technology and knowledge of the market demand. Teachers should constantly improve their professionalism, adopt diversified teaching methods and assessment means to meet the needs of different students, encourage students to actively participate in practical activities, and cultivate students' sense of innovation and practical ability.

3. The college 3Dmax modelling and drawing related teaching mode and the inadequacy of teaching materials

Colleges and universities in the actual environmental design professional direction students 3Dmax modelling and drawing teaching process should also be used in the teaching mode for certain improvements. At present, many colleges and universities in the process of teaching this course to students, the teacher's participation in the process is too strong, and students in the classroom is almost no right to speak and participation, which is very unfavourable to the actual learning of students. Therefore, it is necessary to change the classroom teaching mode, appropriate to help the classroom atmosphere become more active, enhance the students' participation in the teaching process, so that they have a higher interest in learning and exploring the corresponding courses and skills, thus further helping to improve the quality and efficiency of classroom teaching [2]. Teaching models may be too traditional, resulting in a disconnect between theoretical knowledge and practical application. Students may learn theoretical knowledge in the classroom without knowing how to apply it in practice. Traditional teaching methods may rely too much on theoretical lectures and lack sufficient practical and project-driven teaching, resulting in inadequate practical skills for students. Some universities may lack professional teaching resources, such as advanced teaching equipment and adequate teaching materials, which affects the quality of teaching and students' learning outcomes. The existing teaching evaluation system may focus too much on the evaluation of theoretical knowledge and neglect the cultivation of students' practical skills and innovative thinking.

The textbooks used in some universities may be outdated and not updated to reflect the latest technological advances and industry trends. The content of the textbooks may be too abstract and disconnected from actual 3D modeling operations and project practices, which is not conducive to the application of theoretical knowledge in practice. Some textbooks may lack analysis and discussion of actual cases, making it difficult for students to understand the application of theoretical knowledge in practical work. The difficulty of the textbooks may be unevenly distributed, with some chapters being too simple and others too complex, making it difficult for students to learn.

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In addition, in the process of selecting the relevant teaching materials should be combined with the development of the actual construction field, from the building decorations, building structures, building construction drawings and other aspects of the update to ensure that the relevant knowledge is the most in line with the development of the industry at present, the textbook of the irrationalities in the adaptation to improve the quality of the teaching materials, to help the students can get more growth from the teaching materials.

In view of the shortcomings mentioned above, comprehensive reform and optimisation are needed to guarantee the quality of teaching and ensure that students can operate 3Dmax proficiently and design solutions that meet the needs of environmental design. For teachers, the use of 3Dmax software is the basic guarantee to improve students' professionalism, and in the process of actual teaching activities, we should continue to innovate the concept of education and create a relatively free teaching environment.

4. The specific teaching of 3Dmax modelling and drawing in the professional direction of environmental design in colleges and universities

4.1 Optimisation of teaching materials

As mentioned in the previous article, 3Dmax modelling and drawing in colleges and universities should choose appropriate teaching materials in the actual teaching process, as long as the teaching materials are reasonable enough to guide the students' learning will be more accurate. Therefore, colleges and universities must take into account the characteristics of the environmental design profession itself to optimize the editing of the 3Dmax modelling and drawing course. 3Dmax modelling and drawing is a basic course for environmental design students, and in the process of teaching materials must follow the principle that the knowledge is sufficient and applicable enough for the actual needs of the students.

At the same time, in addition to the introduction of 3Dmax specific operation methods, architectural construction drawings and structural organisation of construction drawings and other related basic content, but also to add some other content and materials related to 3Dmax drawing. Especially this course for the three-dimensional space involved in more, so the textbook needs to have a large number of pictures to guide students, not purely theoretical text description. In the process of carrying out relevant teaching activities, the teacher should integrate the content of each chapter of the textbook, according to the integration of knowledge points, and present the corresponding knowledge points to the students in a modular teaching method. From the students' point of view, 3Dmax drawing involves a large number of tools and models, which can not be integrated only by relying on limited classroom time. And when a chapter is over, learning the knowledge of a new chapter requires a change of mind, and may also forget some of the knowledge of the previous chapter. The implementation of teaching activities in modules allows students to be exposed to the continuity of knowledge in the same period of time, even if they are different chapters, but can effectively improve students' mastery of the relevant knowledge. It should be noted that in order to achieve the desired teaching effect, teachers should analyse the knowledge points of each chapter in depth to ensure the integration effect. Furthermore, the construction drawings, materials involved need to be related to environmental design, there can be some excellent construction design cases, in the actual teaching process, the teacher can be compared

to these cases to students for more detailed design concepts, so that students' learning can be more relevant to the actual associated. Through the introduction of the case, students can be linked to its related theoretical knowledge, and associated with their own use of 3Dmax to draw the environmental design programme in the process of the details need to pay attention to. It should be noted that the teacher needs to focus on the design ideas and the use of various types of shortcuts in the process of analysing the case.

4.2 Appropriate adjustments to the teaching content

Colleges and universities in the process of teaching environmental design students 3Dmax modelling and drawing should also make certain adjustments to the content of the teaching, thus helping to improve the corresponding teaching quality. Environmental design professional 3Dmax modeling drawing and other architectural professional drawing courses in the actual teaching there is still a certain gap, the teacher in the process of explaining the relevant content of the students should try to choose and environmental design related to the architectural drawing cases, to the typical case of fine explanation, at the same time, students also need to try to draw more practice [3]. Teachers in the process of explaining to do their own explanation and student practice combined to ensure that students really understand the relevant content thoroughly. As a simple example, the teacher in the process of 3Dmax drawing explanation, can be demonstrated while the students to explain the relevant principles, with the help of certain props, models, or other tools to ensure that students really understand the teacher's intention, of course, some of the precautions are also the focus of the teacher's teaching content, the teacher must not be ignored for these detailed things. Teaching content is regularly updated to ensure that it is kept up to date with the needs of the industry, and case studies relevant to real work are added. If in the actual teaching process encountered the use of teaching materials and students teaching objectives contrary to the situation, the teacher needs to be based on their own teaching experience and the actual development of the social sector to adjust the content of the teaching, everything should be based on the actual needs of the students as the standard, to ensure that the students can really be useful.

In order to help students accumulate to a certain design experience, teachers can also be combined with the classic cases shown to students to set up the corresponding design tasks. Take a landscape garden renovation project as an example, it is required to incorporate elements with Chinese style, and the overall colour scheme in the park needs to be coordinated and unified. Teachers can ask students to independently complete the transformation programme of the drawing, and complete the design according to the specific requirements. For students, when using 3Dmax to draw, they will consider how to meet the two conditions of the renovation project, at this time, the teacher can provide the necessary guidance to them - ‘Analyse the design background, one of which is the requirement of the Chinese style, and the other is the requirement of the overall colour scheme in the park is coordinated and uniform. These two conditions seem to be easy to meet, but after careful consideration, I believe you can also notice that the colour emphasized in condition two mainly refers to the red colour which can highlight the characteristics of Chinese style. Therefore, solving the colour problem will also satisfy the design requirements of the renovation scheme. Under the influence of guidance, students will be inspired to a certain extent, and they will be able to concentrate better in the process of using 3Dmax drawing, and the whole process can lead to the improvement of their level of using 3Dmax drawing.

4.3 Teachers to change their role positioning

College teachers in the process of teaching students 3Dmax modelling and drawing also need to pay attention to their own role in the process of reshaping, to change the traditional classroom teacher-dominated model, change the role of the relationship, and further to highlight the students in the classroom learning in the main position. In the college curriculum teaching, teachers must understand that they are not the students' nanny, there is no need to analyse all the knowledge and skills are directly instilled into the minds of students, this mode of teachers themselves tired, for the independence of the students and the later work is also extremely unfavourable. College teachers should learn to guide students to think independently in the course of study, there are students own thinking, and gradually carry out in-depth exploration of relevant knowledge. In the early stages of this habit, students may have a certain degree of discomfort, and even learning efficiency will be reduced because of the change in the learning mode, college teachers need to continue to persist, and gradually help students adapt to this mode of independent learning, and then really master the skills of learning,

but also have a more thorough understanding of the relevant knowledge. For example, teachers can put forward a certain problem in classroom teaching, students will be divided into different discussion groups, by the students themselves to explore the corresponding learning conclusions. Or given a few environmental design projects, students are free to team up to choose, using the knowledge and skills to carry out the project design. All these can subtly help students in the learning of the subject position has been highlighted, and ultimately in the learning of greater progress. For teachers, more time in class for students to complete 3Dmax drawing exercises, or seminars on drawing, can effectively improve students' comprehensive drawing level. In the specific teaching activities, we should also pay attention to strengthening the interaction with students, combined with the current technical development of 3Dmax drawing.

4.4 Improvement of teaching methods

The most taboo in the teaching process of colleges and universities is that teachers always use the same teaching methods to teach students all the contents of the curriculum. On the one hand, the environment of colleges and universities is more free, students have the opportunity to come into contact with a variety of interesting and fresh things, so the demand for freshness will be higher, if the teacher always adopts the same teaching methods, students will inevitably gradually lose interest in the relevant courses. On the other hand, the advantages and disadvantages of each teaching method are different, suitable for the teaching content is also a big difference, if teachers always use the same teaching method, teaching efficiency will be a big gap. Therefore, teachers in colleges and universities should pay attention to the attempt of more diversified teaching methods. Just in terms of architectural drawing, there can be hand-drawn drawings, but also with the help of computers for drawing, and other tools for drawing, teachers in the course of architectural drawing of this course will naturally be involved in the process of these three ways of drawing, the way of teaching is also certainly different. The former can use some traditional teaching methods, the latter certainly need to use the computer and other tools as a classroom teaching tools to ensure that better teaching results. Therefore, it is necessary to improve the teaching methods, to try new teaching methods, with the help of some technological means or the introduction of some new wave of teaching methods from abroad, and constantly combined with the attempt to ultimately help students have more and more desire for the classroom, but also to bring students a better teaching effect.

By improving teaching methods, teaching efficiency can be effectively improved and students can accumulate 3Dmax drawing experience. Diversified teaching methods such as project-driven and case study teaching are adopted to improve students' practical ability and innovative thinking. From the teacher's point of view, in the process of innovating teaching methods, first of all, we should pay attention to the cultivation of students' innovative consciousness, and require students to try to use different tools when completing the drawing tasks. When completing the environmental design scheme independently, students should be guided to take the initiative to innovate and incorporate some innovative elements according to their own ideas. Through the cultivation of students' innovative consciousness, students can be encouraged to use 3Dmax flexibly to complete the corresponding drawing tasks. As for the environmental design profession itself, when students have a certain sense of innovation, they will be able to design a more perfect programme. Secondly, teachers need to ensure the extension of teaching, that is, with the help of online learning platforms, so that students can also accumulate a certain amount of knowledge related to 3Dmax drawing in their spare time. In the practical stage, teachers can arrange online learning tasks according to the syllabus, requiring students to complete the corresponding tasks on time, and for the problems encountered by students during the video course, teachers can fix a time every week for online Q&A. Utilizing online platforms and open resources to encourage students to learn independently and improve their independent learning skills.

5.Conclusion

Colleges and universities in the direction of environmental design professional 3Dmax modelling cartography in the actual teaching process, teachers must improve the corresponding teaching system, there should be more reasonable teaching materials for students to learn a more correct guidance, to constantly adjust the content of the teaching, to ensure that the students learn is indeed the most needed by students, but also timely conversion of the classroom role in the positioning, highlighting the students' status as the main body of learning, to guide students to have a more independent thinking and learning habits. Guiding students to have more independent thinking and learning habits. Finally, there are more diversified teaching methods to ensure that the classroom is always attractive to students, but

also to help the quality of classroom teaching can become higher.

References

[1] Zeng Yingying, Zhang Min, Zhang Yanan. A preliminary exploration of Auto CAD teaching in environmental art design majors[J]. Journal of Anhui University of Technology (Social Science Edition).2014,31(5):93-94.
[2] Wang Yi. Introduction to the reform of practical teaching and laboratory construction in the direction of environmental art design interior design[J]. Modern communication.2016(9):167-167.
[3] Zhang Di. Teaching reform and practice of environmental art design specialty[J]. Vocational Education Research.2013(9):155-157.