

Research on Practical Teaching Method of Product Design Major in Class Based on the Idea of Applied Talents Training - Model Making Course as an Example

Yaping Liu

College of Art, Shandong Women's University, Shandong, China

Keywords: Applied Talents; Product Design; Practical Teaching; Model Making Course.

Abstract: Under the background of applied talents training idea in colleges and universities, this paper analyses the current teaching situation of Product Design Major, and takes the course of model making as an example, puts forward reform and practical measures, explores a new classroom teaching mode, enriches the ways and methods of innovation and entrepreneurship education, and rethinks the role orientation of university teachers in practical courses rationally, aiming at enhancing the teaching effect of practical courses in Product Design Major and improving students' theoretical level and practical ability.

1. Introduction

Product Design Major is a comprehensive interdisciplinary subject which combines humanities, art, science and technology. Its main goal is to train comprehensive talents to meet the needs of market economy. This major requires students to have solid theoretical basis, good aesthetic ability, a certain amount of technical knowledge reserve and strong practical ability. This paper is based on Product Design Major and takes the course of model making as the object, the purpose of the study is to break through the restriction of the previous teaching mode, constantly improve the teaching ways and methods of practical courses, explore and reform in practice, and obtain the teaching methods of the major which adapt to the market, and cultivate professional design talents that meet the needs of society and the times.

2. Current Situation and Problems of Product Design Major

According to statistics, at present, more than 400 colleges and universities in China have set up Product Design Major. In recent years, with the adjustment and upgrading of the national industrial structure, the society has put forward higher requirements for the scientific, artistic and innovative design of products. In *Some Opinions on Promoting the Integration and Development of Cultural Creativity, Design Services and Relevant Industries* issued by the State Council, it is clearly stated that "Cultural Creativity and Design Services should be integrated with manufacturing, consumer goods, construction and information industries" [1]. It is actually the integration of product design creativity and engineering technology.

However, a common phenomenon has been exposed in many universities: some graduates of Product Design Major are often engaged in advertising design, graphic design, and even some of

them are engaged in other fields. In fact, Chinese enterprises are in great need of product design talents, but they are unwilling to accept students who have just graduated from colleges and universities. One of the most important reasons is that most graduates only understand theory and lack practical experience. They cannot go deep into the problems of product structure, material, process, etc. They can only engage in simple product appearance design, but lack the corresponding practical ability of material and process, experiment and test, investigation and feedback in the follow-up of appearance design. This phenomenon of low counterpart employment shows that, the traditional training mode of product design talents cannot meet the needs of the market, and the colleges and universities should train 'applied talents' rather than pure theoretical talents. Therefore, we should change the past emphasis on theoretical knowledge into the coordinated development of theory and hands-on operation, and even take course practice teaching as the main teaching content, and use students' strong interest in practical courses to stimulate their learning initiative, so as to realize the new course model of learning & understanding theory in practical teaching. The reform of such practical teaching method in class can help students to complete and strengthen the practical links in a real sense, increase their social competitiveness, and cultivate a new generation of product design talents with ideas, understanding concepts, creative breakthrough ability and execution ability. At the same time, it can better test the professional teaching theory, improve the teaching quality, enhance the reputation of the school, and lay the teaching foundation for the long-term development of the major and colleges.

3. Definition of the Idea of Applied Talents Training

The training of product professionals takes modularization as the core and application as the assistant. The idea of applied talents training refers to: on the basis of cultivating students' humanistic art and social science knowledge, guided by the needs of social talents, focusing on training students' working skills that the knowledge learned can be used and be used for a long time. The training of applied ability of talents should be the focus of students' cultivation, so as to enhance their practical operation ability. The ultimate goal is to fill the gap between college students' training and enterprise talents' demand, and to cultivate students' ability to get employment immediately after graduation.

Based on the idea of 'applied talents training' and taking the model making course as an example, this paper explores and reforms the teaching methods of practical links in class, which is of great significance to the rapid development of Product Design Major.

4. General Problems in Model Making Course

Teaching method is important part of course design, and appropriate teaching methods can cultivate students' abilities to independently think, analyze and solve problems, and make them rapidly grow into applied talents who can serve enterprises and society [1]. The model making course of Product Design Major is an important practical link in university teaching, and plays an important role in the cultivation of undergraduate talents. According to the investigation, the common problems in the practical course of model making are as follows:

4.1 Obsolescence of course content

Although the arrival of Bauhaus education system makes product design depart from the original system of arts and crafts, after a long period of development, the content of model making course in colleges and universities tends to be aging [2]. With the development of the times, the improvement of technological means, the increasingly critical aesthetic style, the richer variety of materials and the more convenient means of expression, the old model making course will show some limitations.

The traditional methods and thinking make the course too narrow, single and closed. If the course of model making does not keep pace with the times, it will be out of touch with the current technology and aesthetic concepts, hindering the training and development of applied talents in Product Design Major.

4.2 Formalization of course system

There is no clear design direction for Product Design Major in some colleges and universities, which leads to many, wide and disorder contents of model making course. The course makes the items related to product design pile up in the training plan, lacking primary and secondary. For example, some universities have also set up cultural creative products, household products, ceramics products, transportation facility, and so on. While the contents of the project are rich and colorful, it will inevitably lead to simple teaching, and ultimately the learning effect is too extensive to be perfect.

4.3 Stereotype of teaching mode

The usual teaching mode of model making course is that the teacher first explains the theory and then demonstrates it, the students watch and learn, and then operate it. The teaching mode of passive acceptance is not conducive to broadening students' horizons, but also to stimulate their creative practice.

4.4 Simplification of assessment methods

The assessment of model making course is usually completed in the form of homework submission. Of course, it will also be completed in the form of work exhibition or online exhibition. However, the assessment score ultimately depends on the judgment of the teachers. The author believes that this assessment method is too simplistic, and the role of judges can be more extensive, such as the audience visiting the exhibition, voting on the popularity of the network and so on.

4.5 Feedback lagging of teaching effect

According to the talent training plan, the professional courses should interact with each other. However, the reality is that after the model course is over, it seems that all the contents related to this course stop abruptly, let alone the influence and help on the next professional course. The feedback of teaching effect lags behind and disjoints, which is also one of the common problems of the model making course in colleges and universities.

4.6 Deliberation of results show

The establishment of model making course should pay attention to training of rules of art form and the cultivation of hands-on ability, and to the artistry and expressiveness of production process and results. However, the reality is that teachers and students' excessive pursuit of homework results in students paying more attention to imitation, even looking for someone to do it or customize it on the Internet. It is absolutely not handmade that can print in 3D, and it is absolutely not handmade that can carve in laser. The model of 'result is greater than process' neglects the exploration of creative process and the cultivation of creative ability, which leads to the low ability of students to solve practical problems.

5. Solutions to Problems in Model Making Course

In view of the problems existing in model making course, the author has analyzed and concluded the following solutions:

5.1 Re-orientating of the roles between teachers and students

We should re-orientate the role of teachers in practical courses, for example, turn the traditional dominant role of teachers to the guidance role through close combination of practice and giving full play to students' main role, and through cooperation and team learning forms; the students should be turned from passive to active. Teachers should give students enough autonomy when teaching to make models. Teachers should play a leading role rather than a dominant role. They should guide students to think independently, should cultivate their quality of not afraid of failure, summarize up experience from failure constantly in the process of model making, adjust their own design plan pertinently again, and create the best design works by repeatedly adjusting the model.

5.2 Mobilization of teaching links

In the course of model making, students' hands-on practice is the best way to learn, and various hands-on attempts and explorations are the source of new ideas. For example, in the teaching process, interesting folk crafts, traditional folk arts and so on are applied to the product model making course, and the culture, crafts and ingenuity are crossed and integrated with the model making course [3]. Every step of training students' practice must strive for excellence and pursue ultimate perfection. In addition, we should also cultivate students' hands-on ability and meticulous practical attitude. All the teaching links in the course should be centered on developing students' potential to the greatest extent and arousing their thirst for knowledge and enthusiasm for practice.

5.3 Flexibility of teaching means

We should use flexible and diversified open teaching methods and on the basis of explaining the relevant theoretical knowledge, through a large number of case studies and the ways of task-driven, project-oriented and flipped classroom, etc, open teaching methods, to combine theoretical and practical teaching of model making course, to reflect the professional characteristics.

5.4 Introduction of emerging technologies

The application of new technology is an expression of keeping pace with the times. It will certainly inject fresh blood into the course of model making. For example, introduce our rapid prototyping function of 3DP technology into the classroom, which will have a unique advantage in the production of cultural creative products, and compared with the traditional production methods, the new technology will improve the product effect and the quality of teaching.

5.5 Demonstration of results

For the final product of the model making course, we can set up an Internet-oriented display platform, or hold product design model making contest, so that students with ability can actively participate in product design activities. In addition, we need to develop a reasonable assessment system, which combines the results display with the award-winning contest or online voting. In order to solve the problem of assessment results, we need to innovate in practical teaching, so as to strengthen students' practical and innovative abilities.

5.6 Practice of school-enterprise cooperation

The weak foundation of practice always affects students' ability of design innovation and realization. Combination of school education with enterprise education will strengthen students' engineering practice ability. We can consider introducing real projects of off-campus cooperative enterprises into the model making course, and using the designers of enterprises as guest teachers of the course, so that they can teach students the essentials of practice. The introduction of real projects can enable students to disseminate their ideas and improve their innovative ability in the

process of training.

6. Conclusion

The above aspects are improved based on the teaching methods of model making course of Product Design Major. In my opinion, we must start with practical lessons if want to train applied talents in product design. The students' innovative and practical abilities will be improved only by introducing a series of reforms, such as teaching links, teaching methods, teaching modes, assessment methods, teacher-student orientation and the new technologies, then, the students' employment competitiveness will be increased, and the graduates of Product Design Major will meet the market demand. At the same time, it can effectively improve the popularity of the school, and ultimately train a large number of qualified product designers who can think, practice, keep pace with the times, and have strong innovative ability for the school and society.

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