

## Research on Teaching Methods of Product Design Courses Combining Theory and Practice

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**Keywords:** Theory and practice; Product design; Teaching method

**Abstract:** In the product design course, not only the professional theoretical knowledge is taught, but the relevant educators pay more and more attention to the organic combination of theory and practice. This is not only a change in the teaching method of the traditional design course, but also the product design problems encountered in time. It is conducive to fully mobilizing the enthusiasm of designers to participate in product design, and truly achieve the goal of learning to use this teaching.

The product design course belongs to the professional design practice course. At the same time, the course is more theoretical and practical. If the learner wants to consolidate the theoretical knowledge and improve the applicability of theoretical knowledge in product design, he should actively cooperate with the theory put forward by the teacher. This teaching method is integrated with practice, which not only effectively solves practical design problems, but also enhances the designer's innovative thinking and enhances design practice. This paper can provide reference for teaching methods for related majors, promote continuous improvement of industrial design industry, and optimize product design effects.

### 1. Product Design Course Basic Introduction

The course mainly includes two aspects, the first aspect is system development; the second aspect is product design, and the theoretical knowledge points mainly include product design definition, design principle, product design innovation and design program. This course involves more knowledge points. Learners should master the basic knowledge of engineering drawing, model making, modeling foundation and rendering techniques beforehand. At the same time, master the design process based on understanding the product definition. The learner should also possess certain design thinking and thinking ability, solidly consolidate the basic theoretical knowledge, and on this basis, realize the ingenious transformation of theory to practice, so as to enrich the knowledge content and cultural connotation of the designed product and enrich the learner's design experience.

### 2. The Necessity of Participating in Product Design Teaching in Theory and Practice

First of all, students can analyze product design practices according to the design knowledge they have mastered, which will increase the application rate of theoretical knowledge in practice, and pull in the distance between theory and practice. At the same time, students will also have an impression of theoretical knowledge; secondly; Students will encounter more problems in the actual product design practice. By recalling the theoretical knowledge and improving the application value of theoretical knowledge in practical problem solving, students can develop their design analysis ability and problem solving ability. Then, students can Conduct group communication on relevant issues such as theoretical integration practice, and consult teachers if necessary. This process is the process of design perspective change, design ideas development, and teacher-student relationship improvement. Finally, in order to better practice the teaching method of theory and practice,

teachers will actively explore industrial design knowledge and enrich their practical experience. In this process, teachers will greatly enhance their teaching ability and professionalism.

### **3. Analysis of Teaching Methods of Product Design Courses Combining Theory and Practice**

#### **3.1 Fusion Pedagogy Common Problem.**

In recent years, the number of enrolled students in industrial design has gradually increased. The resources of professional teachers in the school cannot meet the teaching needs. Some teachers have changed from the arts and crafts industry or the painting industry. These teachers have relatively little experience in product design, and often follow the instructions. Not paying attention to the ingenious connection between theory and practice, and then the product design practice activities are only carried out in formal form. Nowadays, computers have become the main tools for product designers, but the number of design teachers who are really proficient in computers and flexible in designing software is few and far. The traditional teaching methods not only waste teaching time, but also are not conducive to product innovation. Connotation.

The textbooks used in this course have ideal characteristics in process design, but the product design practice activities do not limit the process. The two are often not synchronized in specific links. Therefore, teachers should fully grasp the knowledge of the materials and handle the process flexibly. The relationship between design and practice.

#### **3.2 Integrated Application of Integrated Teaching Method.**

When industrial design majors carry out product design course teaching activities, they should first define the teaching objectives, determine the type of products to be designed, and improve the product design system. In the meantime, do a comprehensive market research activity, stand from a system perspective, and integrate relevant theoretical knowledge design practice activities with reference to product types, and consider aesthetic factors and artistic factors. In addition, a suitable solution should be proposed to fully organize the design related documents.

#### **3.3 Adhere to the Concept of Practical Teaching.**

As the main body of action in the product design course, students should attach great importance to practical actions, use the theoretical knowledge of the organization to organize reasonable practical activities, give full play to the group cooperation and teacher-assisted role, and implement the practical teaching concept into the overall product design activities. In order to truly achieve a good combination of theory and practice, we should pay attention to the school-enterprise alliance, that is, design colleges should work together with enterprises to strengthen the relationship between the two through project design. The course teacher signs the project contract and introduces the product design project in the actual course, which is infiltrated into the design teaching.

#### **3.4 Develop a Product Design Course Teaching Plan.**

School and enterprise engineering formulate curriculum teaching rules: The theory and practice integration method is implemented through the form of school-enterprise cooperation. Students are exposed to the enterprise product design project in the teaching material and use it as a way to consolidate theoretical knowledge, so that students can master the diversity products. Design practice. Students can also take an internship in the school-enterprise cooperation base, take the initiative to participate in the product design practice activities, and use the training unit to complete the product practice design. Normally, the individual training unit is completed in about 20 days, and the activity design time is relatively free. Practice is less difficult. Collaborative development of curriculum theory teaching material: the successful design of enterprise products as the theoretical teaching material, students in the process of learning this data can not only consolidate the basic knowledge, but also grasp the design ideas and design methods of the designed products. Collaborative organization product design course practice activities: The course practice activities are ingeniously linked to the enterprise product design project. During this period, professional designers and professional teachers jointly guide students to operate the advanced equipment of the

enterprise, which not only can change the perspective of students designing products, but also enrich Students' practical experience and improvement of practical ability are conducive to achieving the development goals of combining theory with practice.

### **3.5 Application Examples of Integrated Teaching Methods.**

As can be seen from the above introduction, the product design course requires learners to have rich theoretical knowledge and strong practical ability. The example is a case of cooperation between a school and Lemeida Enterprise. The school conducts product design courses in the form of product design competition. Assessment. For example, the product design object provided by the enterprise is a baby stroller, and the product design course uses it as the main material for explanation, that is, the product function is specifically introduced. In order to enable students to understand the products designed by the company within a limited time, introduce the product understanding link into the classroom, and form the students into several groups, ask the professional designers to explain the product components and related structures in the classroom in detail, during which the designer It will also point out the things that need to be paid attention to during the design process, set up classroom questions in the necessary steps, and guide students to answer the correct ideas.

After learning about the design of the children's trolley product design in the form of classroom learning, students can redesign the suppression plan and draw up the design sketch with the help of existing professional knowledge. After the work is completed, submit the draft design sketch to Lemeida. Enterprises, waiting for the company to review the results, will also give guidance when the company responds. For the approved product design sketches, the sketch designer can make computer renderings under the guidance of the teacher, and finally submit the Lemeida enterprise, waiting for the company evaluation results. Students who have achieved outstanding performance and good performance during the product design process will receive internship opportunities, mainly because students who have obtained internship qualifications have already had a general understanding of the design products. Such students do not need to spend time on training and can directly participate in corporate practice. This will not only enhance students' self-confidence in product design, but also greatly save the cost of corporate training.

### **3.6 The Effect of the Curriculum Application Fusion Teaching Method.**

The above-mentioned school-enterprise cooperation method--the application of the integrated teaching method in the product design course not only enriches the theoretical knowledge transfer content, enhances the applicability of the theoretical knowledge, but also stimulates the enthusiasm of students to participate in the product design course learning. Efficiency improvement is of great significance. The process of students participating in the product design competition, that is, understanding the process of designing products and mastering the product design sequence, is of great significance to the development of students' design thinking and design creativity. At the same time, it will enhance the hands-on level of students. The school cooperates with the enterprise, can grasp the future development trend of the industrial design industry, and can formulate a reasonable design talent training program according to the needs of the industry development, and the professional curriculum will be effectively adjusted in the class time, which will be to some extent Improving the employment rate of industrial design students is of great significance to the establishment of a good image of the school, the increased opportunities for school-enterprise cooperation, and the improvement of corporate economic efficiency.

After applying the theory and practice teaching methods, the product design course will help students to enhance their problem analysis ability and questioning spirit in product design activities, and students' consideration of problems and problem solving methods will be quite different from the past. To help students develop good product design habits. In the traditional product design course, students spend a lot of time to study theoretical knowledge. However, there are relatively few opportunities to participate in design practice, and the practice time is relatively short. In the end, the theoretical knowledge that students master cannot be tested in practice, and then slowly Forgotten, at the same time, the ability to practice is not improved. Comparing the different

teaching methods, it is known that the combination of theory and practice is more suitable for industrial students to design their learning needs, and it will also optimize the quality of course teaching, which is of great significance to the increase of school popularity and the increase in enrollment.

#### **4. Conclusion**

In summary, the product design course should optimize the reform effect, improve the quality of the course teaching, and apply the theory and practice teaching method that advances with the times, that is, guide students to participate in product design practice activities on the basis of mastering professional knowledge, which is not only It will innovate the teaching methods of previous product design courses, and will also cultivate excellent product design talents, which is of great significance for design product quality optimization and design product innovation. In addition, it is conducive to comprehensively improve the design level of China's industrial products, deepen the reform of product design curriculum, design learners' design ideas, practical design capabilities will also be developed and upgraded accordingly.

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