Research on Teaching Methods of Clothing Structure Design under the Transformation and Upgrading Development Mode

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Abstract—**Under the promotion of the transformation and upgrading development mode, the relevant fashion institutes need to boost the comprehensive reform of education and teaching in depth and steadily. Clothing structure design is one of primary courses in fashion art design, so the transformation and upgrading of the institute is bound to involve the transformation and upgrading of this course. With the transformation and upgrading development as an opportunity, the paper has analyzed the shortcomings and deficiencies in the course of clothing structure design in order to optimize the framework of structure design course, meet enterprises' needs for talents and complete the transformation and upgrading.**

Keywords—transformation and upgrading; clothing structure design course; research on teaching methods

I. INTRODUCTION

Clothing structure design course is a compulsory course in fashion specialty. Its importance is comparable to that of fashion design and fashion technology. Its main research content is to transform the three-dimensional form of human body dressing into the plane model, which is a transforming process from 3D to 2D. Clothing structure design is an extension of fashion design, and also the preparation before transforming technology into clothes. It is a course to transform 3D pattern into 2D pattern. It involves in a wide range of knowledge, including clothing style design, fashion technology design, mathematics, etc., with the combination feature of art and technology.

II. THE SHORTCOMINGS AND DEFICIENCIES IN THE TEACHING OF CLOTHING STRUCTURE DESIGN

Many scholars and experts have explored and researched the teaching of clothing structure design. Their researches have completed the teaching methods of clothing structure design to some extent. The paper also has analyzed the teaching status of clothing structure design, and concluded that it mainly has the following problems.

- In the arrangement of the teaching plan, structure teacher is separated from technology teacher. The time interval between structure course and technology course is too long. Each teacher has different understanding and methods on structure pattern-making. Their teachings are also slightly different, which may confuse the unfamiliar students and cause knowledge gap.

- The teaching materials used have big gaps with markets. The styles in textbooks are slightly backward compared with these in the markets. Most of them are traditional basic styles. So students cannot follow the changes of style in the markets.

- Most of clothing structure design teachers take office directly after their graduation from school. They may lack work experience in enterprises. Their understanding on clothing structure design knowledge may stay on the surface. With no rich experience accumulation, they have no plumpness of knowledge.

- Most of students in fashion institutes are interested in fashion design. But they may lack knowledge on the importance of clothing structure design. Relevant teaching in numbers and lines is boring, so students are rejected to learn and not interested in learning.

III. DISCUSSION AND THINKING ON THE TEACHING STRATEGIES OF CLOTHING STRUCTURE DESIGN

A. The Introduction of Three-Dimensional Cutting into the Classroom Teaching of Clothing Structure Design

In the clothing industry, three-dimensional cutting and plane cutting are greatly applied. But they have both differences and similarities. The large-scale tailoring production mostly uses plane cutting, while the small-scale and complicated styles mostly use the three-dimensional cutting. Both of them have advantages and disadvantages. So we can combine them and make the best in order to produce more accurate and beautiful styles. So is the teaching of clothing structure design.

In the teaching process of clothing structure design, students with different foundations are difficult to understand human body and pattern from the perspective of plane. It is difficult to make complicated pattern with plane cutting once. It may need repeated adjustment in the process. In the adjusting process, if use plane cutting, we need sample clothing to observe the final effect. It reduces the efficiency in

the actual production. In this case, we can combine plane cutting and three-dimensional cutting. First, we can use plane cutting to make framework design of style. And then try on it on mannequin. The try-on and adjusting process is a process of three-dimensional cutting. We can adjust partly if there is unfit structure. The adjusted pattern can be used as industrial pattern. From plane to three-dimension and then to plane, we can well combine the advantages of these two types. It can improve the pattern quality and efficiency.

The three-dimensional cutting doesn't need experience. We can get desired model with intuitive judgment and operation. Yet, the model on mannequin cannot be used directly in tailoring production. Detail parts need to be corrected accurately. If we don't adjust industrial pattern, there will be error in pattern. In the modeling process, we can use three-dimensional cutting to operate clothing structure. After the completion of general model of clothing structure, take a sample. In the sampling, mark the parts of collar and armholes. And then make it into plane model for the convenience of adjustments. So, we can get accurate model and pattern.

B. The Combination of CAD for Clothing and Clothing Structure Design

The CAD for clothing is the main course of fashion specialty, which requires students to have strong practical operation ability. CAD for clothing in clothing engineering specialty is mainly used for drawing clothing structure drawing and pattern grading and layout. The main advantage of CAD for clothing is that it can better and faster improve the work efficiency. Clothing structure design, especially pattern grading, has the time-consuming and laborious drawbacks in the production and teaching. Therefore, it has certain reference for fashion specialty and other professional courses to combine two courses and solve some teaching problems.

With the development of clothing industry, it is just a matter of time for CAD for clothing to replace handmade pattern-making. Students of fashion specialty should learn professional skills well, and grasp the essential CAD for clothing. If we want students master CAD for clothing at school, we need to integrate the clothing structure course and CAD course. CAD for clothing is a type of computer software. Its main role is to present the clothing structure design. The combination of both can save class hours, and increase the richness of course. Students can carry out interactive practice of knowledge in class. So, it is very important to combine the course of clothing structure design with the course of CAD for clothing. The teaching content of clothing structure design is mainly to teach students the basic principles of structure and the conventional drawing steps and skills. CAD for clothing is to map the structure with software, and then finish a series of operations, including tailoring, marking and yarn direction. The appearance of CAD for clothing has provided a good method to improve the efficiency of clothing industry. In traditional structure design, it takes several hours to grade a man suit pattern with freehand sketching. It only costs about ten minutes to finish it with CAD for clothing. And it can figure it out automatically. The efficiency is very high, and it can also increase the accurateness of cutting. If we combine the two courses, we can blend knowledge of clothing structure design into the course of CAD for clothing. The combination can extend class hours and enhance students' CAD operation skills. And it can help students learn knowledge independently and expand their scope of knowledge.

In the traditional clothing structure design teaching process, teachers draw on the blackboard. Its disadvantages are obvious. By the influence of classroom space, students in the back of classroom nearly cannot see what teacher draw clearly. They see drawing patterns faintly. If things go on like that, students may feel boring in class. If teachers enlarge the patterns, it may waste a lot of time. A lot of time consumes on transfer of patterns. The combination of CAD for clothing with clothing structure design can improve course quality and teaching efficiency. And making patterns with computer enables to enlarge and modify pattern accordingly. Teachers only need to spend a little time on displaying teaching content, and they have more time to exchange with students. The arrangement of teaching content may also change. The multi-media teaching mode is gradually replacing traditional teaching mode. But in this process, we also need to retain the advantages of traditional teaching mode. For example, we can finish these operations through CAD in one step, and students can directly see results. But students may don't understand the operating process. The combination of courses not only needs to make innovation, but also needs to combine advantages of traditional mode, so as to improve teaching efficiency and course quality.

The integration of clothing structure design and CAD for clothing is mainly reflected in the following three aspects.

- In the arrangement of the teaching plan, introduce students CAD software tool simply in the early stage. Don't need to explain all tools. Only need to explain how to make simple outlining designs. Students master the simple tool, and they can apply it in structure design and understand the operating process. Otherwise, students may be confused and don't know which is the most important, principle or operation of tool in clothing structure design process. If so, the combination of courses wouldn't reach its effect. So, in early arrangement of course content, teachers can first explain the simple tool CAD to students.

- CAD for clothing is a computer-aided design tool. Teachers can make full use of it in teaching to transfer structure course from blackboard to multi-media. Students can see the complete pattern-making process. If there is any part they don't understand, teachers can repeat the display. The display process can be finished in a short time, so it doesn't need to cost a lot of class time. This operation method cannot be achieved in traditional teaching mode. Teachers can use CAD for clothing to explain details in structure design course, and students needn't to review knowledge of structure design in CAD course. It has a good effect on consolidating students' knowledge integrity.

- We can separate the pattern grading course from structure design course with the application of CAD for clothing. It costs time and energy to use blackboard to explain pattern grading, and it is difficult to improve students' learning enthusiasm. It costs a lot of time to

explain one knowledge point. The combination of two courses provides convenience for pattern grading. The easy operation can improve students' learning interests, and enhance teachers' teaching strength. Teachers can repeatedly display single difficult point or key point. It not only enriches the teaching content, but also would not cause learning pressure on students. It is a great help for students to improve their practical operation ability to combine courses, so that students can lay a good technical foundation for entering into enterprises.

IV. THE DEVELOPMENT PROSPECTS OF CLOTHING STRUCTURE DESIGN IN THE FUTURE

The change of clothing industry structure also leads to the change of students' learning of knowledge structure. The invariable teaching mode is no longer adapted to the rapid development of the society. We need to make innovation on the basis of traditional teaching mode in order to absorb the essence and discard the dross. The integration of advantages of courses can expand teachers and students' knowledge scope and increase the richness of class. Students can receive more knowledge points in a relative short time, transform knowledge into practice, and deal with changes of enterprises and market. The pursuits of consumers on fashion style become more and more diversified. Changes of style and fabrics have been insufficient to meet their needs. A good clothing pattern should not only show the taste of dresser, but also be comfortable. The clothing structure design plays an important role in the development of clothing industry in the future.

V. CONCLUSION

Clothing structure design is not an independent course. It has a close relationship with many other courses, such as three-dimensional cutting, CAD for clothing, industrial pattern-making and pattern grading, and human-body engineering for clothing. They are aided marginal courses of structure design teaching. Some can promote and explain the content of structure design, and some can deepen the knowledge of structure design. In teaching process, we can integrate some courses according to teaching content and students' actual situation, and divide learning module into easily digestible, digestible and hardly digestible modules to realize mutual advantages in teaching. It can stimulate students' interest in learning, improve the quality of teaching and learning, and improve teachers' enthusiasm for teaching. The curriculum reform could provide a technical support for training compound talents.

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