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The Training Strategy Study on Special Ability of the Computer Aided Clothing Drawing

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***Abstract*—In the Course of Computer Aided Clothing Drawing, it must aim at cultivating special ability of computer aided clothing drawing effectively. Specific strategies are shown as follows: use a task-driven teaching mode to train drawing ability; implement a teaching mode of homework exhibition to reinforce judgment ability, and improve innovative ability based on the competition-driven teaching mode.**

Keywords—Computer aided clothing drawing; special ability; training strategy; teaching mode

I. INTRODUCTION

With the high-speed development of the clothing industry, computer aided clothing drawing ability has already become an essential special ability for modern costume designers. Drawing ability, judgment ability and innovative ability are important component parts in computer aided clothing drawing. Under the background of the higher education advancing with times, the traditional teaching method that "values theory and neglects practice" can't adapt to capability requirements of modern enterprises for costume designers anymore, thus reform is an irresistible trend. Under the circumstance every teacher may have to reflect on some problems, such as how to do teaching reform in the Course of Computer Aided Clothing Drawing? How to confirm the teaching targets? How to construct an ability training strategy?

II. APPLY THE TASK-DRIVEN TEACHING MODE TO TRAIN DRAWING ABILITY

With the constant development of the clothing industry, modern costume design has the more scientific and refined division of labor. In terms of costume paintings, it is gradually divided into two types: utility-oriented effect drawings and artistry-oriented fashion illustration. Effect drawings serve for costume designing and productive services directly, transfer design concept, and provide clear basis for costume designing, plate making and production [1]. According to incomplete statics, about 90% of graduates majoring in costume designing will engage in design effort of enterprises every year. As a result, teaching contents of the Course of Computer Aided Clothing Drawing should get close to practice, set up the philosophy of "combination of learning with working", and cultivate drawing ability of effect drawings by aiming at work tasks.

The task-driven teaching method can be better applied to teaching contents with the stronger experiment, practicability and operability. It is filled with enjoyment and based on the scene that motivates learning motivation and curiosity of students. With the carrier of tasks combining with teaching contents closely, it enables learners to gain knowledge and skills in the process of finishing specific tasks[2]. Such a method is introduced to the Course of Computer Aid Clothing Drawing to bring a new teaching means to the course. With the effective combination of post work and teaching demands and physical truth, professional resources are sufficiently utilized and training effects are greatly promoted.

In the Course of Computer Aided Clothing Drawing from September 2016 to January 2017, "2017 s+ brand parent-child clothing product development in spring and summer" project runs through the entire course as a large-scale task. The product aims at young parents from 22-30 years old and children in 2-6 years old. The theme of the product development is "a happy holiday". According to the suitable range, it can be divided into sports, party, outing, relaxation, cuteness and coolness.

The selective basis of the task is shown as follows: (1)For the practical Course of Computer Aided Clothing Drawing, there are 8 modules, including software operation foundation, style drawing(parts, men's wear and women's wear), dress pattern drawing(independent patterns, two-dimension series patterns, and four-dimension series patterns), lining drawings(waving lining, knitting needle and knitted fabric), clothing illustration drawings, auxiliary drawings(zippers, circular beading and lacework), apparel accessories((headwear, handbags and shoes), and comprehensive exercises. Every module is equipped with some refined knowledge points; (2) The practical post situation with the "parent-child clothing product research and development" is the result that teachers comprehend materials, make overall plans and take all factors into consideration and design well. This is a typical university-industry cooperation task. It not only combines with relevant knowledge of 8 modules, but also gives lots of drawing exercises to students; (3) In drawing exercises, if the same content is operated repeatedly, it is mechanical and boring.

The features of "different size and color of the same style" in parent-child clothing will make exercise contents become vivid, fresh and interesting. It is good for students to maintain the good learning attitude in the class or after the class; (4) The task of "parent-child clothing product research and development" includes students' differences on the existing cultural cognition level and design ability and trains students' ability to participate in practical work and solve problems with the principle of priority to the easy and progressive process; (5) The target task of "parent-child clothing product research and development" is visual and final form is a real product. Once students finish such a task, their sense of achievements will arise spontaneously, thus enthusiasm for paintings will be increased greatly. This is good for the subsequent professional learning.

Brothers Dreyfus divides skill acquisition into seven developmental stages, namely beginner stage→senior beginner stage→competent stage→proficient stage→expert stage→master stage→practical wisdom stage, showing that career growth is a progressive process. The ability development has a training process from finishing simple tasks to complicated tasks. In the study of every module, the task of "parent-child clothing product research and development" is corresponding decomposed into tiny and definite tasks, coordinates with relevant knowledge points and carries out drawing exercises in different details. For example, in the module of "software operation foundation", it will be suitable to draw T-shirt in the same style. In the module of "style drawings", silhouette of male T-shirt and female T-shirt should be drawn differently. Then, round collar of women's wear should be decorated by some lotus leaf to guide students have the consciousness of costume designing. Such a task-driven teaching always emphasizes clearness of training contents, logicalization of training thinking, diversification of training means, structuralization of training process, and practicality of training results. When training basic skills in the Course of Computer Aided Clothing Drawing, it also starts design enlightenment and intensifies drawing ability.

The task-driven teaching in the Course of Computer Aided Clothing Drawing based on the constructivism actually has the primary line of post tasks, confirms teaching targets, optimizes teaching contents, constructs teaching environment, creates the teaching process, and deepens teaching evaluation. In addition, it also has the dark line with the ability cultivation of effect drawings, faces up with students, notices learning experience, encourages individual development, and realizes the reform of teaching view of "teaching by learning".

III. Implement a Teaching Mode of Homework Exhibition to Reinforce Judgment Ability

Homework exhibition means the homework display and judgment and it is the extension and supplement of classroom teaching. As a chance to provide mutual learning, exchange and reference for students, housework exhibition is a good organizational form and it has the role of "teaching by exhibition". In the form of vividness, visualization, intuition and diversity, it is favored by teachers and students. It is an important teaching process that is hard to be replaced. It is believed that it has the same important status just like teaching methods and teaching assessment [3]. In terms of students, homework is a means to practice, detect, master, consolidate, extend and expand their knowledge. In terms of teachers, homework is a way to report information, find out problems, summarize experience, and improve teaching methods. Homework is the bond to connect with "teaching, learning and application". It is a basic practical activity for teachers and students to realize teaching interaction and finish teaching tasks.

As a teaching resource, homework plays a special role on ability cultivation of students. In the Course of Computer Aided Clothing Drawing, course homework has the strong visual features. The formal contents are abundant and it has diversified techniques of manifestation and strong artistic enjoyment. In the teaching of the Course of Computer Aided Clothing Drawing, homework exhibition can be applied to cultivate students' judgment ability.

For example, drawing homework is set up as designing a set of voluntary clothing for the sports city, including a hat, and T-shirt with painted design and color matching. Students should finish it after the class and homework exhibition will be implemented in the next time.

In order to carry out homework exhibition, it must develop the leading role of teachers. Firstly, it must clearly list primary judgment indicators, so that students can understand it and judge quality and value of homework. As a result, teachers in the class should firstly announce the judgment criteria in the computer aided clothing drawing of voluntary clothing: (1) T-shirt with painted design is the visual focus; (2) Color of T-short and hats should be bright and it is easy to express the status of volunteers, so as to develop the subject role of students. Based on the combination of self-assessment and mutual judgment, it is able to reinforce students' ability to apply effective comments in Computer Aided Clothing Drawing and develop cognitive transfer and critical thinking level in judgment skills. Some admit in the self-assessment that they fail to reach the judgment criteria announced by teachers. In students who reach the judgment criteria, some of them talk about design idea for painted design. Some of them elaborate the meaning that they design voluntary mark on the hat and chest. In essence, self-assessment is a "reflective" judgment mode. In homework exhibition practice, students can learn from self-assessment and perfect themselves. Actually, it is a process of self-cognition and self-learning. In the homework exhibition, self-assessment guides students to do rational analysis and objective judgment on their homework. This is good for developing professional confidence and contributes to establishing their own professional judgement system for the computer aided clothing drawing. In essence, mutual assessment is an "applied" judgment mode. After students integrate with clothing, drawings, and software knowledge organically, it will form the judgment rules for computer aided clothing drawing with quantitative criteria and universal regularity. In mutual assessment, students should analyze quality specification of classmates' homework from connotations, forms, structure and expression. In addition, in

mutual assessment, classmates' homework can be regarded as the training data for divergent thinking. It is an edge tool to improve judgment ability. with the self-assessment and mutual assessment of homework, it builds the leapfrogging learning atmosphere for students. At the moment of reinforcing judgment ability, it also can form the virtuous circle to improve observation, aesthetics and presentation skills simultaneously, so that students' judgment ability and professional level can be improved constantly. The most important should be attributed to teachers' comments. The teacher's comments of the homework stand at the point of "costume expression for voluntary culture" and give some overall suggestion on the homework. The elements include the volunteerism of "dedication, friendly affection, mutual assistance and progress". Costumes should have the practical functions and clear status symbol. As a result, in addition to indicators assigned by the sports city, it has no need for additional voluntary mark and it is better to stand out the word of "Volunteer" on the back of the T-shirt in both Chinese and English. The design of painted design can integrate representative elements of local culture in patterns, so as to manifest spirit and vitality of volunteers in a good form. As a matter of fact, it is "skill-teaching" judgment mode. On the one hand, through teachers' comments, teachers should display judgment and key points to students with the judgment method to demonstrate and teach correctly. On the other hand, teachers should judge by aiming at students' self-assessment and mutual assessment, it aims to reinforce students' judgment ability.

In the Course of Computer Aided Clothing Drawing, cultivation on students' judgment ability can't be finished at a moment. With the constant improvement of teaching mode, it can apply homework exhibition for instant stage, operation system and class-ending stage and reinforce judgment ability from all aspects and views. In the future, with the construction and application of excellent resource sharing teaching platform in the Course of Computer Aided Clothing Drawing, it also can from the homework-centered learning community. If homework exhibition is implemented under the network environment, the interaction will be stronger and exhibition effects will be better. It is good for developing ability cultivation of homework exhibition.

IV. Improve Innovative Ability Based on the Competition-driven Teaching Mode

The competition-driven teaching mode is a teaching method to promote "study by competition" and promote "teaching by competition". It has the primary line of ability cultivation, the carrier of course, and approach of competition and aims to adapt to talents adapting to market demands [3]. In the Course of Computer Aided Clothing Drawing, the competition-driven strategy is applied. On the one hand, it manifests the industrial property of the course, stands out market features of the course, and promotes teaching reform of the course. On the other hand, it reinforces students' subjective consciousness, motivates students' explorative spirit, and improves their innovative ability.

At present there are at least 20 clothing design contents every year. Most of them emphasize on combining creativity with practice. It is suitable for students majoring in costume designing in various grades to participate. The Course of Computer Aided Clothing Drawing is a basic professional course of sophomores. At the moment, students may not contact with relevant professional courses in clothing structure and technology, thus they have no ability to fabricate actual clothing. According to teaching contents and schedules, they can participate in design contests without requirements for objection fabrication. Based on the "International Silk Pattern Design Competition", the competition solicits contributions in June and meets a deadline in October. The final is held in December. It is generally lasting for half a year. By aiming at the design requirements that productions only stand out pattern supply, objects in the final will be fabricated by the committee. The competition establishes the creative space for students, motivates their consciousness of competition, and forms a kind of progressive atmosphere. Students have no economic burden and productive pressure to participate in such a competition and they just need to motivate their creative inspiration and thinking. By virtue of the computer aided drawing software, the design philosophy is convoyed in the form of patterns. Therefore, there is the extremely sufficient internal impetus in the competition. Moreover, teaching time of the Course of Computer Aided Clothing Drawing can be synchronous with students' ability and level. As a result, the assignment standards of the course can be set up as the level of competitive works. In addition, it can organize students to carry out creative design and well-designed drawing on the basis of the existing ability and motivate them to contribute directly.

However, competitive works with competitive property after all may differ from common course homework. Driven by professional competition, students should firstly change their attitude towards course homework, thus students' enthusiasm for homework and study on drawing technology can be promoted obviously. In the first step, guided by teachers, students can search for any possible competition information, such as thematic styles. Next, students can analyze finalists and final works over the years, study features of top three works, and explore reasons for being awarded. In the second step, after collecting and settling relevant competition information, students have some experience on "how to design creatively" and design the draft. In the stage, students can live up to dramatization of theme, scenario of scenes, and enjoyment of expression and form multiple drafts. In the third step, after they compare, select, integrate and optimize multiple drafts, they can confirm a relatively satisfactory design scheme for exposure drafts. In the process of exposure drafts, students will pay attention to rational display of drawing technology, study innovative application of drawing techniques, care about visual aesthetics of frames, and emphasize on expression of form and meaning in design concept. In the fourth step, on the basis of exposure drafts, students will evaluate competitive works mutually and propose different modification suggestion from multiple views, so that works will be further modified, promoted and perfected from

design connotations, techniques of expression, and drawing technologies, forming the first draft. In the fifth step, in the stage, students will submit to teachers for guidance to form the official draft. The objects of the final are fabricated by the plant under the authorization of the committee, so teachers can remind some common productive events according to production requirements of enterprises. For example, graphic design and drawing in drawing technology must be basic elementary units in the circulation, thus it is necessary to mark the graphic size and draw pattern effects after circulation. If the layout size is not suitable, it must scale graphic size according to the correct proportion. Color matching scheme of graphs should be marked and explained according to printed technical requirements. Color parameters should be based on international Pantone used by enterprises, instead of RGB value in computer aided drawing software.

As the basic course in the costume designing major, the Course of Computer Aided Clothing Drawing has the strong attribute of "raw materials". With the processing of competitions in costume designing, "raw materials" will be changed into "finished products". In the process, students will have the increasingly strong special ability of computer aided clothing drawing, thus their confidence in costume designing will be increasingly satisfied and innovative ability can be dramatically improved. The competition-driven teaching contains enjoyment learning, explosive learning, enlightenment learning, and cooperative learning. It is a novel teaching mode, a way to promote students' professional ability with competitive practice, and a feasible measure to fully use social resources to promote the course reform. The costume designing competition is a touchstone to test the Course of Computer Aided Clothing Drawing and an assistor to develop students' creative potential and enhance students' innovation ability.

V. CONCLUSION

The Course of Computer Aided Clothing Drawing combines garment materials, styles, structure and technical knowledge with drawing knowledge and computer aided drawing software operation closely, applies task-driven mode, homework exhibition, and competition-driven teaching mode, and cultivates students' special ability of the computer aided clothing drawing from training drawing ability, reinforcing judgment ability and improving innovative ability. This is a kind of teaching strategy established on the structural basis of "teacher dominance+ student subject" and is the specific embodiment of competency-based concept. In the Course of Computer Aided Clothing Drawing, the course cultivates students' special ability of computer aided clothing drawing, gives invisible wings to students, and makes them fly in the sky in clothing design freely.

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