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"Flipped Classroom" Teaching Design of the Course of "New Technology of Apparel Digitalization"

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***Abstract*—As a new network teaching mode, "Flipped Classroom" is increasing attracted attention. This paper took the postgraduate courses section of " New Technology of Apparel Digitalization " as an example, and made a preliminary study on how to carry out "Flipped Classroom" by referring to the "double main three sections and seven links" teaching mode, which is based on the school existing network teaching platform to sharing teaching resources. Design from eight aspects to discuss and analyze, to name just a few learners, learning content, goal, strategy, resources, environments, activities and evaluation, comprehensive and effective teaching design is more conductive to improving teaching efficiency and effectiveness, to stimulate students to learn the enthusiasm, what is to implement to lay the foundation for the "Flipped Classroom" for the next step.**

Keywords—teaching; Flipped Classroom; network teaching platform

I. INTRODUCTION

Internationalization, informatization and individuation are 3 main themes of contemporary education, "Flipped Classroom" exaggerates 3 features on the basis of integration of teaching forms. Currently, the fragmented mobile learning gradually becoming the mainstream of human learning, this pattern with its mobile and openness quietly transformed the traditional classroom teaching structure. Personalized, student-centered of Chinese-style is rising [1].

As a new web-based teaching model in recent years, "Flipped Classroom" has received wide attention in the industry. Flipped classroom means readjusting the time inside and outside the classroom, to transfer the initiative of learning from the teacher to the students [2]. That is a blended learning model which reverses the knowledge transfer and knowledge internalization in the traditional classroom [3]. Hybrid teaching is an organic combination of the network and traditional face-to-face teaching, and the reform of hybrid teaching needs to sufficiently consider the reform of the network and traditional, especially the reform of network teaching [4].

Based on the requirements of postgraduate teaching, this paper designs the "Flipped Classroom" teaching of the course of New Technology of Apparel Digitalization by using the network teaching platform of "double main 3 segments and 7 links" to turn the classroom teaching model.

II. THE COURSE OF "NEW TECHNOLOGY OF APPAREL DIGITALIZATION"

Garment design and engineering is a secondary discipline of textile science and engineering. Our school was established master's degree of clothing design and engineering for 28 years what cultivated a large number of master's students since 1990. Clothing digital media technology and application (garment computer) direction is the Clothing Design and Engineering specialty an important research direction, this direction mainly is train the clothing and the computer application technology unifies the compound talented person, in the computer aspect attach importance to the clothing digital media technology. In this direction, 4 researches points were established, which were clothing parametric design, garment image retrieval, virtual reality and intelligent interaction, emotion theory and technology.

The research direction of graduate students, the undergraduate stage is mostly clothing design and engineering, computer technology and other relevant professional, some are familiar with the relevant knowledge of clothing and acquaintance with computer knowledge. This course unifies the clothing digital media technology and the research direction of application, which mainly is to understand the clothing and the new technology, especially the apparel digitization aspect the latest technique and the application.

The ultimate goal of this course is to initiate a new field of vision for graduate students in apparel digitization technology and understand provided that not master quite a few frontiers hot issues in the research of clothing digitalization at home and abroad. To Understand otherwise master the theories and methods of the research of garment digitalization technology that improves their scientific literacy lest to lay a foundation for the report.

The main content of this course includes: The concept of clothing digitalization, clothing emotion and emotional design, image emotion recognition and retrieval, 3D printing technology, artificial intelligence, Brain-inspired computing, wearable technology, etc. Because of the rapid development of information technology as a result the teaching content is revised and perfected to combines the current situation of technology development every year.

Teaching model intends to adopt flipped classroom of "double main 3 segments and 7 links" teaching model. "Double-Master" is the teacher-led and student-centered;

"three-section", that is before, in the course of and after the class; "Seven links" is the teacher's teaching preparation, knowledge transmittal, guidance internalization, teaching reflection and student's knowledge acquisition, knowledge of internalization, learning summary [5].

The network support platform adopts the existing network teaching platform of our university. That was put into use in March 2009 upgraded at the beginning of 2016, which increased the function of supporting Flipped Classroom, IMOOC and Streaming Media. The system optimizes the bottom architecture and web design, what achieve the separation of teaching resources and activities to provide instructional design function for supporting the construction of IMOOC. It is to construct hybrid courses what is the latest model of flipped classroom at home and abroad.

Based on the actual situation of web-based teaching platform, this paper takes the "second chapter of costume emotion and affective design" as an example, while instructional design is carried out on 8 aspects, such as learner, learning content, goal, strategy, resource, environment, activity and evaluation [5].

III. "FLIPPED CLASSROOM" TEACHING DESIGN

Good instructional design is able to greatly improve the efficiency and effectiveness. The "double main three-section and seven-link" model is carried out by 8 aspects that are learner analysis, content, objectives, strategies, resources, environment, activities and evaluation.

A. Learners ' analysis

The course number of classes is generally not more than 10 individuals. Master students have been on the computer basic courses in the undergraduate, whose commonly has a certain amount of computer application, internet experience, good understanding about network, for in the class, they will receive the teacher to share the homework and learning resources from the educators' sharing, and the end of the course will be uploaded on the network platform operations. From undergraduate' major, the most of the what is clothing design and engineering, besides computer technology and science. At the postgraduate levels, students have a strong self-learning ability, and New Technology of Apparel Digitalization course itself is to inspiring students argues that to understand the frontier position technology issues.

Therefore, students should have learning enthusiasm, whose are able to proficient in the use of web-based teaching platform for learning.

B. Design of university contents

Why we need emotional design, what is and how to achieve are mainly interpretation of the content for the "second chapter of garment emotion and affective design". There are reference materials of electronic version including on-line collection of information for instructors and teaching PPT documents additionally the PPT electronic version documents. Students can download otherwise online learning from the network teaching platform. The fundamental reference in this chapter is shown in Figure 1. To name just a few, the Emotional Design and postgraduate thesis are electronic versions.

Fig. 1. The electronic reference resources of Chapter II

Teaching can be diversified. In addition to the network teaching platform to upload information and electronic version of the paper, paper version of the information such as Clothing Emotional Theory on paper what gives out in the class for everyone. Two kinds of teaching methods are alternately implemented, this is capable of motivating students more enjoyment and experiencing different learning content. It is suggested that students go to the library to borrow the other paper teaching materials lest to self-study summary.

C. Design of learning goals

For the main content of this chapter, "why do you need emotional design?" that students understand and grasp the origin and significance of affective design from the humanistic point of view. To name just a few for the public, the product is no emotion, and the design is capable of giving emotional sent from the emotional factors, so that consumers need this product and produce desire to purchase. The appearance of this product or function is able to achieve the emotional design.

"What" that students understand the connotations to how to achieve.

"How" that students grasp the technology to how to achieve.

D. Design of learning strategies

Because of the little students from a class are well-suited form a learning group. In the class, the team members are able to work together to accomplish a study of material, thereafter make an electronic version of PPT, and at the moment to take a speech by on behalf of the group members or each member, ultimately show the results of learning. The students have a preview of the data on the teaching platform before class, which is so discussion to barter thought for each other. What is after that summarizing quite a few questions to discuss with the educators in class.

E. Design of learning resources

From partition the time, the learning resources include the learning resources in the class and after; form partition the resources forms, text, pictures, audio, video, object and model are included. As a consequence of postgraduate students has a constant self-learning ability, so this chapter provides the text materials, including reference books, theses and periodicals.

F. Design of learning circumstance

The learning mainly includes the network learning after class and machine room environment in the class. Students access and skim the teaching materials by utilizing the PC or mobile phone APP even swot up by platform. The main part of the class is discussion due to using the computer room's PS to accessing and skimming, else after class.

The learning materials skimming steps are as follows:

- Graduate student accounts number landing online teaching platform page or APP client home page.
- Find the course you are studying in this semester and click on this course.
- Click the (provided that learning) button to enter the learning environment, click on the course section.
- Go to each section to browse or download the uploaded data.

G. Design of learning activities

From the view of learning, the design is essential to pour attention into students' self-studying and collaborative inquiry activities for learner-centred. Instructors will give issue guidance for students catch sight of their questions that contribute to solving, which obtain truthfulness knowledge and to experience the sense of studying achievement.

Educators provide the major impetus for students to learning progress by speaking otherwise learning platform and spurring their desire to explore further, which is a positive meaning for deeply understanding the concept and connotation of affective design.

H. Learning evaluation

That the method is the combination of formative and summative evaluation, else is qualitative and quantitative evaluation to evaluate. To make quantitative evaluations of the feedback of the student' data preview, discussion and answer question in class. The former is to consider whether they skim materials and prepare be circumspective. From the latter, makes an on-the-spot investigation, what is whether to put forward personal views to actively involved in the discussion for understand contents.

IV. CONCLUSION

This article takes analyzes how to design learning of "flipped classroom" according to making the course of *New Technology of Apparel Digitalization* as an instance. The ultimate goal of this course is to initiate a new field of vision for graduate students in apparel digitization technology and understand provided that not master quite a few frontiers hot issues in the research of clothing digitalization at home and abroad. To Understand otherwise master the theories and methods of the research of garment digitalization technology that improves their scientific literacy lest to lay a foundation for the report.

In that the teaching design of the classroom has perfected, on the one hand, in the studying of the road, which the students' vision and mind have been generous in thoughts; on the other hand, in teaching technology, that the school's digital new technology to broaden the development of space and make up for the lack of teaching.

And based on the network teaching platform to have successful experience of others to go by the "Flipped Classroom" of "double master three sections and seven links". What is to analyse 8 aspects include learner, learning content, goal, strategy, resources, environments, activities and evaluation. Among them, in the learning environment introduced into the learning environment steps, which is more conducive to students of self-learning, learning more clearly the purpose. The last is to lay the foundation for developing "Flipped Classroom".

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