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# Hybrid Spaces Teaching for “Chinese Traditional Costume Craft”

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The general teaching mode for practical courses of design education was demonstration teaching by face-to-face and step-by-step. This exploration perhaps could provide a teaching method as a reference for practical courses in other design contents. An improved teaching mode about Chinese traditional costume crafts focusing on hybrid spaces including online teaching platforms, digital technology, and virtual interactive learning was introduced. Lu embroidery as the teaching object was shown in this case study. Online teaching platforms and interactive learning system of crafts based on virtual technology were employed, and students were required to study embroidery knowledge and crafts by self-learning at pre-class activities. Intangible cultural heritage inheritors and teachers at physical space discussed with students face to face and guided students to carry out innovative designs. This case study demonstrated that hybrid spaces for design education could improve the ability of students' self-learning and teaching efficiency.

Keywords: hybrid spaces; Chinese traditional costume crafts; teaching online platform; interactive learning

## 1 Introduction

“Chinese traditional costume craft” is a practical course of the fashion design discipline (Li et al., 2017). Its content includes theoretical knowledge and practice. The theoretical content was recorded into a video and uploaded on an online platform. Students could freely arrange a time, learn online by themselves and complete knowledge assessment tasks according to the course requirements. Practice required students to learn basic traditional clothing crafts through an interactive learning system based on virtual technology. Li Shengnan et al. (2018) presented similar method. They completed a traditional Chinese clothing display system Based on virtual reality technology and Unity3D development tools. Intangible cultural heritage inheritor helped students understand the ingenuity of craft by on-site teaching. Guo Chen et al. (2018) pointed out that the virtual reality interactive teaching approach could expand upon traditional teaching methods for fashion design and the study of traditional costume for design development. Then, students innovated the basic crafts while fully mastering them and designed works that met the current aesthetic needs (Ma et al., 2012). To meet the different requirements of teaching goals at every stage, the hybrid spaces teaching mode of this course means that physical space and online virtual space were used at every stage, such as pre-class, in-class, and after-class activities.

## 2 Hybrid Space Teaching Implementation

### 2.1 Pre-class Conceiving and Resource Preparation

#### *Pre-class conceiving*

For the characteristics of the practical course, the teaching group comprehensively analyzed study habits, interests, performance, personality characteristics of students, and considered the features, course goals,



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completed courses, follow-up courses. Then the course was conceived pre-class by a teaching group. A complete chain of teaching links was planned, and the content of each link was detailed as follows (figure 1). The first step in the teaching program was course analysis and student analysis, then the next step was planning teaching goals and content. Finally, according to these goals an online teaching platform was chosen, teaching group prepared to the teaching resource, determined teaching tasks, formulated learning evaluation rules, and set learning outcome display methods. A summary and reflection would be conducted when the course was over, and the teaching program of the course was adjusted to improve the teaching effect continuously.

Because practical courses needed to spend a lot of time on work guidance, teacher-student interaction was frequent, each link must be in-depth and meticulous, and needed to consider the smooth transmission of teaching information from teacher to student.

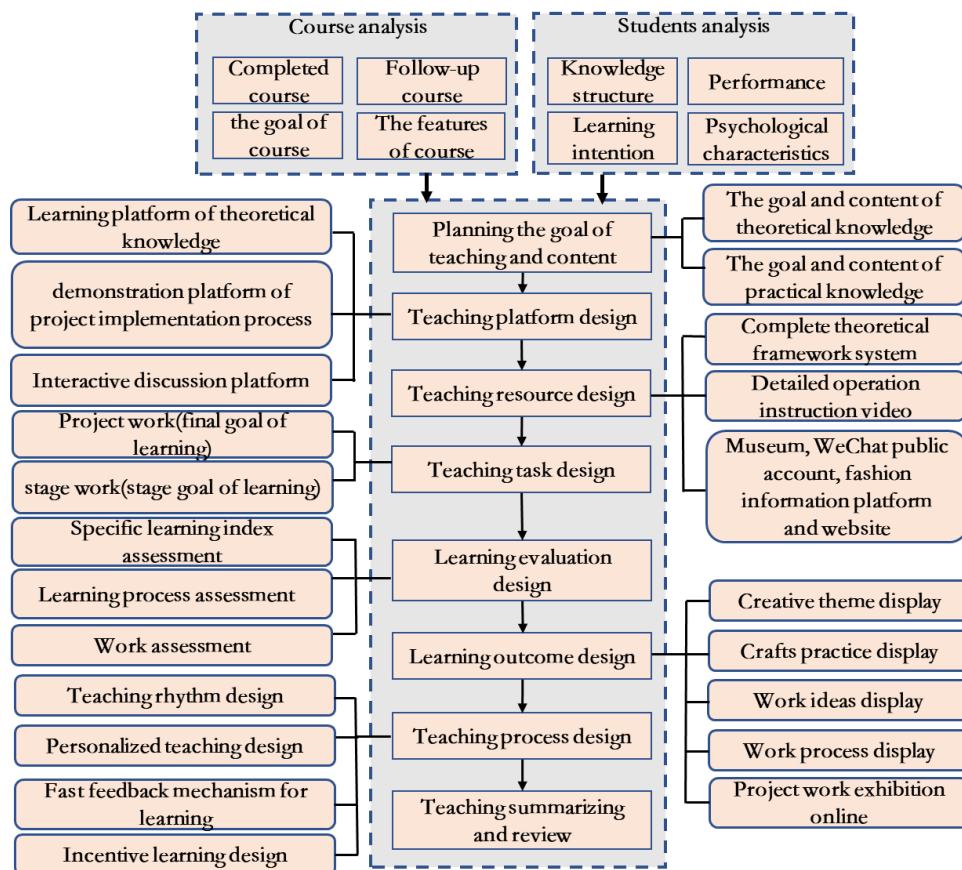


Figure 1. The mind map of the teaching program.

### Preparing online pre-class teaching resource

Theoretical knowledge of traditional costume crafts included four categories: weaving, printing-dyeing, embroidery, hand sewing. The pre-class theoretical knowledge has been recorded. The videos were made by a professional team. Examination points such as the quiz and special discussions were set up in videos of the course. The content of the course was uploaded on the online platform.

There was a wealth of craft types in the practice content of traditional costume crafts. It was impossible to learn all the crafts in a limited time. Therefore, it could only be problem-oriented and selective learning according to design projects, design tasks in cooperation with enterprises, and self-made Design themes. The final goal results were needed to clearly be presented.

Based on determining the target results, firstly crafts were classified in a modular and thematic manner, and organically divided into fragments. A hierarchical structure was used to build a knowledge system of crafts (Figure 2), and then upload the text and pictures of the fragmented crafts on the learning platform or video files, so that students could choose to study independently according to their own topics.

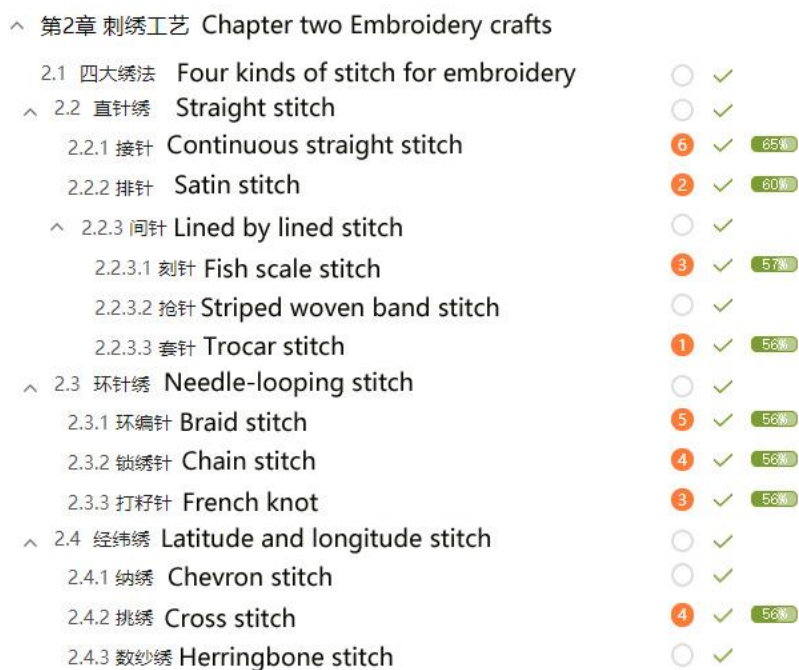


Figure 2. Craftmanship was built in a hierarchical structure. (portion)

## 2.2 In-class Teaching Implementation

### Hybrid spaces

For the effect of theoretical knowledge learning in practical courses, the teacher group conducted a comparative analysis between the online platform and traditional face-to-face teaching in the classroom by analysis of survey results (as shown in Table 1). In pre-class activities, students began to learn theoretical knowledge on the online platform in hybrid spaces mode. Then teachers guided students to discuss the different methods of traditional costume crafts, respective characteristics, advantages, disadvantages, and how to apply them in the planned target results in physical space. Finally, teachers made a summary. While deepening the understanding of the knowledge having learned, the mode of hybrid spaces also indirectly urged students to think actively and open ideas.

Table 1. Comparison of Two Learning Modes of Theoretical Knowledge for Traditional Costume Crafts

Points	Hybrid spaces teaching	Face-to-face teaching
The content of theoretical knowledge	knowledge was divided into fragments, diverse forms of knowledge, however, knowledge expansion was limited.	According to the class schedule, single form of knowledge, but knowledge could be freely expanded.
Learning time	Free to arrange.	By course schedule.
Learning methods	Repeatable self-learning.	Non-repeatable passive learning.
Teaching interactive	Online Q&A and discussion, Free and plenty of time, and discussion was insufficient.	Face to face communication and Q&A, discussion was sufficient, but time was limited.
Teaching management	Automated, flexible time, and get feedback quickly.	Required teachers to control flexibly, and teachers complete statistical analysis after class.
Teaching efficiency	High efficiency and realizing the flipped class mode	Less knowledge learned in the same class time

On the online platform, the modular and thematic knowledge of traditional costume crafts was presented in the form of videos, pictures, and electronic books. Task points and time could be set in videos, electronic books. There were data records in detail and statistical charts for students' learning activities. The teaching

group could check students' learning progress and problems, manage students, assign homework, and organize group learning, etc. on this platform.

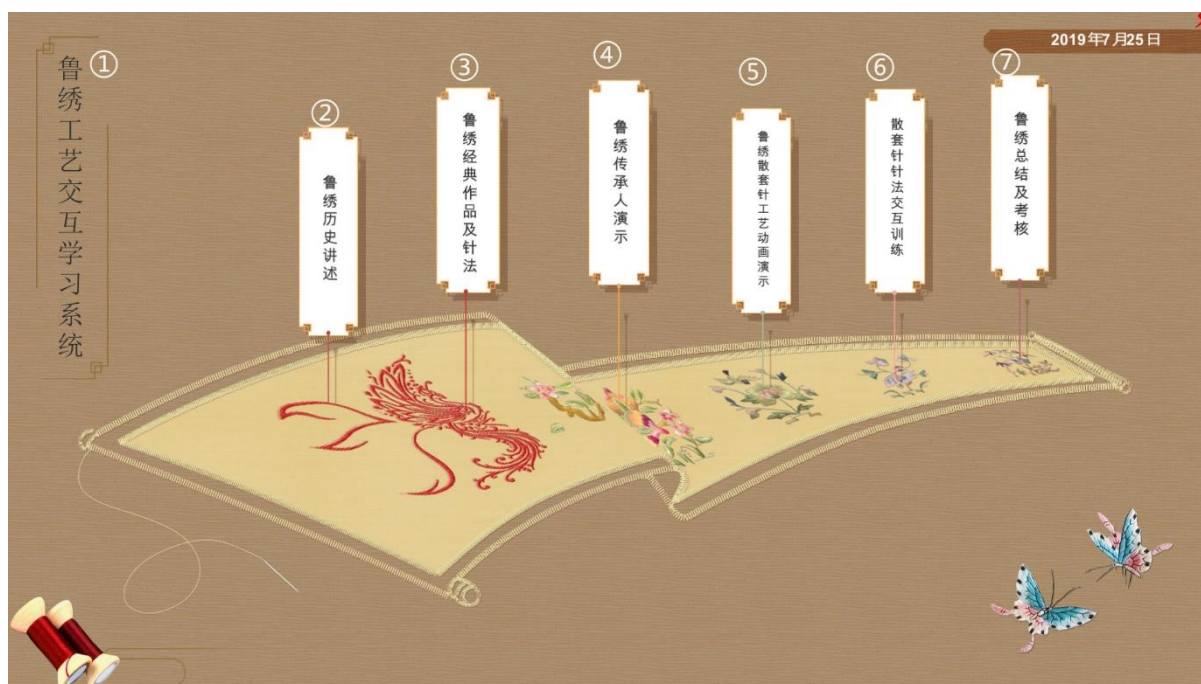


Figure 3. Lu embroidery interactive learning system. Translation: ①Lu embroidery interactive learning system; ②History of Lu embroidery; ③Lu embroidery classic handicrafts and stitches; ④Demonstration of the inheritor for Lu embroidery; ⑤Animation presentation of long and short stitch; ⑥ Interactive practice of long and short stitch; ⑦ Summary and assessment

Virtual simulation technology was tried to apply in in-class process, the teaching group developed the "Lu embroidery interactive learning system" (Figure 3), the system recorded the intangible cultural heritage inheritor's demonstration of Lu embroidery crafts video, and based on three-dimensional animation and interactive technology Lu embroidery crafts interactive learning was developed, which simulated the operation process of Lu embroidery crafts: material preparation, thread splitting, stitches, stitch density, needle arrangement of various batches, and thread changing according to patterns, etc. The system provided an interactive training platform to students with a virtual three-dimensional environment.

The virtual simulation interactive learning system was used for the purpose of realizing the flipped classroom teaching. Through interactive learning, students could pre-class preview online and after-class learn repeatedly. It reduced the consumption of class time and improved teaching efficiency. It tightly coincided with the concept of academic credit systems reform which emphasized self-learning and more time for practical teaching. Breaking the restriction that craft could only learn by on-site demonstration and follow-up. Creating independent learning opportunities for students restricted by time and space. The interactive creation in the virtual environment solved the problem that students could complete the innovative design of Lu embroidery without mastering the actual skills of Lu embroidery, which made up for and solved the shortcomings of the intangible cultural heritage inheritor's on-site teaching.

#### *In-class activities at physical space*

Theoretical knowledge was only learned through the online system, which could not solve the problem of internalization of knowledge. It was also necessary for teachers to organize in-class discussions and methods of creative design in-class discussions to help students complete the construction of the knowledge system, so as to achieve the internalization of knowledge and truly realize the transfer of knowledge for students.

If traditional costume crafts only displayed through videos and pictures, it could not be real, three-dimensional, and experiential learning. Intangible cultural heritage inheritors were invited to conduct on-site teaching in the classroom (Figure 4), it not only allowed students to experience the charm of traditional costume crafts fully, but also students had ideological resonance with the ingenuity of intangible cultural heritage inheritors during in-class teaching.



Figure 4. An intangible cultural heritage inheritor was demonstrating the traditional costume crafts.

In order to strengthen the interaction among students, according to the different content of the practice work chosen, students were divided into several groups and discussions are conducted in every group. Experiences and lessons obtained in the practice process are shared, so that they could fully participate in learning activities. The teaching group made comments and feedback timely at appropriate times and guided students to innovate. The teaching group conducted personalized guiding by summarizing the students' problems, experiences, and submitted assignments in the process of practice, uniformly explained some common problems, gave individual guidance to individualized problems, and helped students find reasonable solutions.

### 2.3 After-class Evaluation and Reflection

The hybrid spaces teaching mode stimulated students to self-learning, abandoned the traditional passive learning mode in-class space, and a more comprehensive process evaluation form was adopted for achievement assessment. 92% of students thought that the fragment learning form of theoretical knowledge could freely administer time and had a better effect for absorption. It provided good feedback for new teaching forms such as intangible cultural heritage inheritors' participation in teaching and virtual simulation interactive learning. Learning theoretical knowledge online and breaking the traditional teaching time and space limitations of practical teaching, teachers, and students could communicate and discuss at any time. Through this teaching practice, it was discovered that how to reasonably set the assessment points and supervise students to complete the pre-class preparation independently were the focus of online teaching for the hybrid spaces teaching mode. The effect of on-site teaching for intangible cultural heritage inheritors was indeed very good, however, this mode was affected by uncontrollable factors of the conflict between teaching time and intangible cultural heritage inheritors' time and took more money to hire them. Another problem was that there were too many students in the teaching process. Intangible cultural heritage inheritors needed to repeat many times for the same demonstration, which led to the low teaching efficiency (Figure 4). Therefore, virtual simulation interactive learning was introduced. The evaluation of the course was recommended to be comprehensively evaluated from the dimensions of attendance, preview, interaction, participation in-class discussion, and completion of work for hybrid spaces teaching mode.

## 3 Teaching Summary

After the teaching case of the "Traditional Costume crafts" course was practiced, analyzed, and summarized, the teaching group formed the course teaching mode and process as shown in Figure 5.

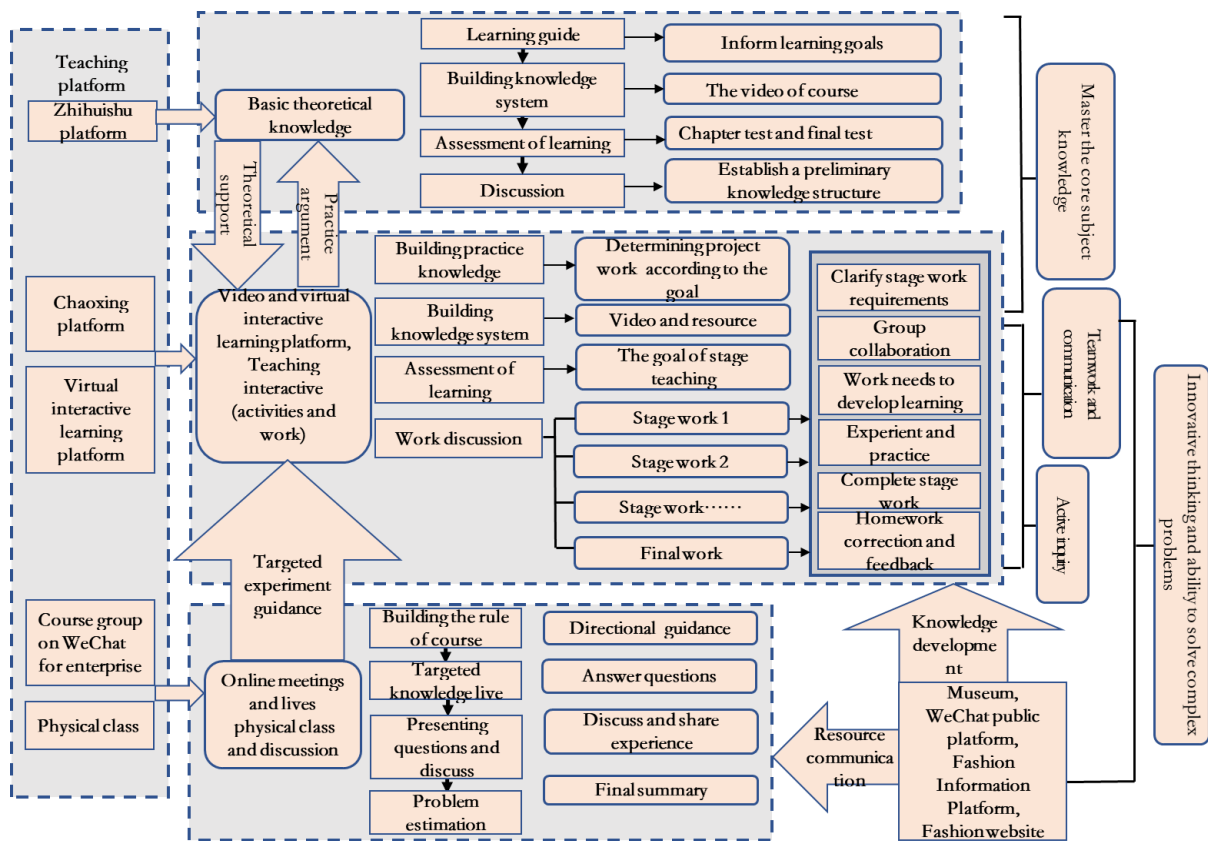


Figure 5. The course teaching method system and process

The teaching case was composed of four online platforms and one physical space. Different teaching spaces of theoretical knowledge and practice raised students' innovative thinking and the ability to solve complex problems. The hybrid spaces teaching fully made use of the advantages of online and physical teaching scenarios to form a complement, improved the teaching efficiency of practical courses, and expanded the teaching space of practical courses. This approach and the insights can be applied and transferred to other design contexts for related practice.

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