



Innovation and Practice of Flipped Classroom from the Perspective of Cultural Confidence Taking the Curriculum of Mobile Interaction Design as an Example

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Abstract. “Mobile interaction design” is to train students to design and produce rich expressive mobile interactive animation online. Besides, it is an organic combination of humanities, art and technology. This curriculum is highly timely and is a curriculum of art design and creation. Under the background of the construction of new liberal arts, the innovation of this curriculum solves the bottleneck problems in professional teaching, such as the rapid renewal of teaching content knowledge, students’ passive learning, lack of practical projects, disconnection between skill learning and humanistic literacy, and so on. This curriculum adopts the mixed classroom teaching mode of online and offline and establishes a flipped classroom teaching mode of “2 + 3 + 2”, which is convenient for students to check teaching resources anytime and anywhere. Students conduct social research and investigation, study regional culture, inspect local museums, integrate excellent Chinese traditional culture and Huxiang culture into the design works, and establish a curriculum ideological and political teaching model of “six combinations, three integration”. After four years of empirical research, curriculum innovation has improved students’ abilities of autonomous learning, teamwork, and innovative thinking. According to the characteristics of digital media art, we should expand humanistic literacy and strengthen students’ advanced learning and in-depth learning. Guiding students to investigate regional culture, museums and other extracurricular activities, collect materials, broaden students’ creative ideas, and cultivate students’ family and national feelings and cultural self-confidence.

Keywords: mobile interaction design · cultural self-confidence · Huxiang culture · flipped classroom · autonomous learning

1 The Conception of Curriculum Teaching

1.1 Curriculum Construction

“Mobile interaction Design” is a required curriculum for digital media art majors in our university (Hunan International Economics University, Changsha, Hunan, China). In 2019, we began to carry out online and offline hybrid teaching reform. The class hours in the talent training program of this curriculum are 40 h and 2 credits. It has 12 class hours

on the middle line and 28 class hours offline. The main content is the knowledge, principles, and methods of mobile interaction design, emphasizing the application of mobile interaction technology. The curriculum is based on the general goal of talent training in our college, that is, to train applied talents with innovative spirit and international vision who can meet the needs of the society. It is necessary to adhere to the guiding ideology of “establishing morality and cultivating people”, integrate the elements of ideological and political teaching, and integrate curriculum and ideological and political education in the form of the whole staff, the whole process and the whole curriculum. It is necessary to pay attention to strengthening the education of students’ world outlook, outlook on life and values, inheriting and innovating excellent Chinese traditional culture. It is necessary to focus on improving students’ abilities of autonomous learning, teamwork, and innovative thinking.

1.2 Curriculum Teaching Goal

Knowledge goal: By learning, to use all kinds of mobile interactive animation to make cloud platforms, to master mobile dynamic effects and their applications, to understand all aspects of mobile interaction design, and to master the basic methods of mobile interaction design, and to develop and produce expressive interactive animation, mobile advertising, mobile Mini Game, mobile education, and other applications online.

Ability goal: to train students to make mobile promotional pages, video commercial advertising, one-shot special effects, long picture drag, form and photo synthesis, panoramic virtual, masking, mobile commercial display advertising, Wechat Mini Game design and other design and production skills. To cultivate solid operation skills, teamwork ability and independent innovation professionalism to meet the job requirements of mobile interaction designers.

Value goal: To unify the professional education of digital media art with ideological and moral education, to cultivate students’ feelings of home and country, the values of upward goodness, and inherit excellent cultural traditions. To cultivate design talents with both artistic innovation ability and noble moral sentiment.

2 Analysis of Teaching Objects and Key Points of Teaching Reform

2.1 Teaching Objects

The main subjects of the study are junior college students, aged between 19 and 21. They have the habit of learning online and like to practice and explore. However, they also have the characteristics of not having a solid foundation, lack of thinking training, not broad thinking, and weak learning autonomy.

2.2 Teaching Pain Point

Mobile interaction design is a comprehensive and practical new professional curriculum [1]. Under the background of the construction of new liberal arts, the discipline is faced with the following problems. There are some bottleneck problems, such as the rapid

renewal of the knowledge of teaching content [2], the passive learning of students [3], the lack of practical projects [4], the disconnection between skill learning and humanistic literacy and so on. Traditional teaching is difficult to arouse students' enthusiasm for learning students are about 20 years old. They hope to have more opportunities to express themselves and need the guidance of teachers after class [5]. In higher education, an enduring challenge in many academic disciplines has been providing students "real-world" learning experiences that immerse students in collaborative contexts, so they deliberate and ultimately address authentic problems [6].

2.3 Solution

For this reason, we have carried out the reform of the online and offline mixed teaching mode from the perspective of national cultural confidence and established a "2 + 3 + 2" flipping curriculum teaching model for art majors. The goal is to train applied talents of interaction design. By reforming the teaching mode and diversified assessment methods, the problem of students "passive learning" is solved, the classroom atmosphere is activated, and the students' abilities of thinking, language and practice are exercised. On the issue of effectively balancing the relationship between students' skill learning and humanistic literacy, the talent training goal of "trinity" of knowledge, ability and politics has been established, and a model of "six combinations and three integration" has been established in the aspect of curriculum ideological and political education. It has a breakthrough effect.

3 Teaching Design and Resource Construction and Application

3.1 Curriculum Construction

Relying on the mixed teaching environment of Super star Learning Pass (A widely used mobile learning app in many Chinese Universities), we should carry out autonomous learning before class, practice while learning in class, consolidate and expand after class, and encourage students to think about expansionary application. There are 68 online curriculum video resources, 16 curriculum teaching classes and 524 students. At present, four rounds of teaching tasks have been completed and the teaching effect is good. Relying on the support of Hunan education reform project, curriculum ideological and political project, social science project, national-level innovation and other projects, the team has carried out the practice and reflection of the mixed teaching mode of online and offline flipped classroom for three years. This curriculum is based on autonomous learning theory, mixed learning theory, constructivist learning theory and humanistic learning theory. The flipped classroom model has been shown in recent years to have a positive effect on students' motivation and academic performance [7].

The teaching mode of "2 + 3 + 2" reversal curriculum is designed.

3.2 Instructional Design

Bloom's Taxonomy is a multi-tiered model of classifying thinking according to six cognitive levels of complexity [8]. According to Bloom's classification of educational goals,

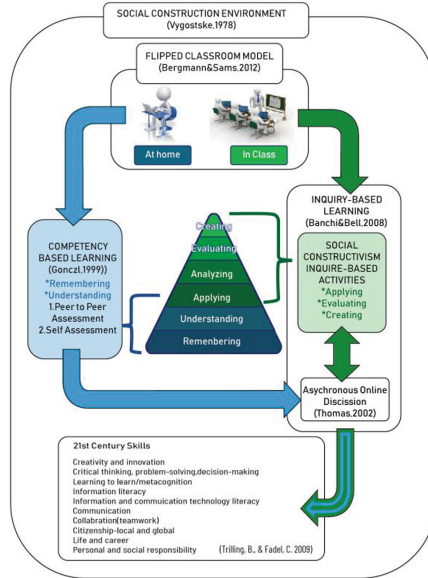


Fig. 1. Mixed teaching design based on Bloom educational goal classification

the curriculum emphasizes student-centered, designs and practices competency-based learning and problem-based learning and promotes the construction or development of students’ core literacy (Fig. 1) [9].

The flipped or inverted classroom is a new and popular instructional model, in which activities traditionally conducted in the classroom (e.g., content presentation) become home activities, and activities normally constituting homework become classroom activities [10]. In the flipped classroom, the teacher helps the students instead of merely delivering information, while the students become responsible for their own learning process and must govern their own learning pace [11].

“Flipped Classroom,” also known as “Inverted Classroom,” now the two concepts are universal, but they have different origins. The idea of “Flipped Classroom” comes from J. Wesley [12]. The term “Inverted Classroom” was first used by Lage et al. in a higher education context in 2000 [13], after which the term was widely adopted in other higher education research [14].

For example, Lage et al. Define “Inverted Classroom” as “inverted classroom means that events that normally occur in the classroom now happen outside the classroom and vice versa” [13].

In the flipped classroom, the teacher helps the students instead of merely delivering information, while the students become responsible for their learning process and must govern their own learning pace [11]. We can conclude that one of the theoretical foundations of the “flipping the classroom” teaching model is Active Learning [15]. The active learning theory based on constructivism that emphasizes “learning by doing” and learners as learning centers [16].

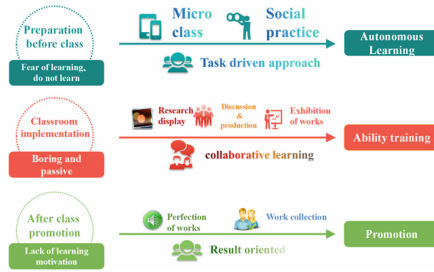


Fig. 2. Three links in teaching and solving three problems

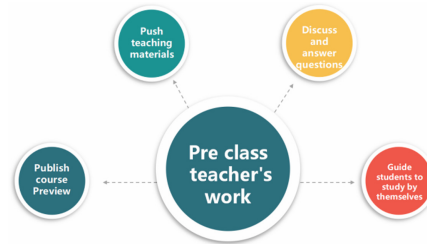


Fig. 3. Pre-class learning activities of teachers

The purpose of this study is to construct a classroom teaching model based on reversal from the perspective of national cultural confidence of “2 + 3 + 2”. Under the guidance of the concept of learning-centered teaching, students’ learning is divided into three links: pre-class preparation “2”: micro-class learning + social practice; classroom implementation “3”: emphasis on difficulties + discussion and production + presentation of achievements; after-class promotion “2”: portfolio + expansion (Fig. 2).

In the teaching design, we should pay attention to the internal connection and content echo between pre-class knowledge imparting and classroom knowledge internalization. According to the learning theory of constructivism, we should promote students’ learning adaptation and assimilation through the establishment of effective scaffolding [16]. Before class, based on the analysis of students’ learning situation, it is necessary to design goal-oriented teaching content, publish curriculum notice on teaching interactive software, push teaching materials, carry out discussion and answer questions, and guide students to self-study (Figs. 3 and 4).

Classroom teaching widely carries out a variety of learning activities, such as discussion, group cooperative learning, peer mutual learning, resource-based learning, case-based learning, project-based learning and so on (Fig. 5).

Students’ after-school knowledge transfer according to the tasks assigned by teachers, free combination, collaborative learning, can be project planning and implementation, work design and production, academic frontier follow-up exploration, or participate in subject competition activities (Fig. 6).

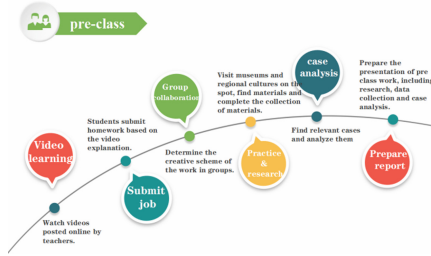


Fig. 4. Students’ pre-class preparation activities

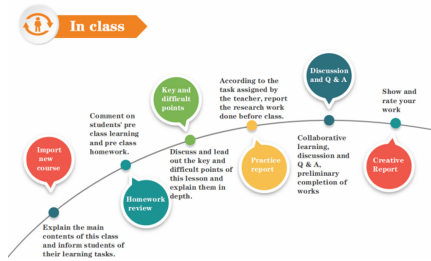


Fig. 5. The whole process of task-driven classroom implementation

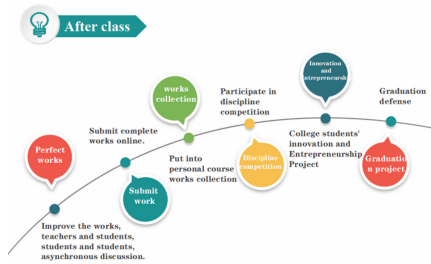


Fig. 6. The process of students’ after-class promotion

4 Evaluation Method of Curriculum Performance

In order to create innovative, high-order and challenging online and offline hybrid teaching, students’ learning evaluation is divided into three parts: diagnostic evaluation, formative evaluation and summative evaluation, which runs through the whole process of online and offline.

4.1 Diagnostic Evaluation

Diagnostic evaluation means to diagnose or discover the students’ difficulties while learning and assess the problem accurately. A diagnostic test is performed to disclose weaknesses and strengths to themselves [4]. In the flipped classroom teaching model,

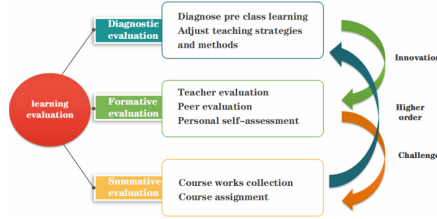


Fig. 7. Curriculum teaching evaluation

diagnostic evaluation can diagnose students’ learning situation immediately at the beginning of pre-class learning activities and classroom knowledge internalization, so that both teachers and students can further adjust the strategies and methods of teaching and learning.

4.2 Formative Evaluation

Formative evaluations are designed to provide information to help instructors improve their online instruction [18]. We have created a five-in-one formative evaluation model based on online and offline hybrid teaching. It includes five modules: curriculum attendance, online learning, classroom performance, homework practice and group mutual evaluation to assess and evaluate students’ autonomous learning, professional knowledge, teamwork and the ability to analyze and solve problems.

4.3 Summative Evaluation

The goal of summative assessment is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark [19]. Summing-up evaluation: At the end of the curriculum, students submit large assignments in the form of assessment assignments, and make a summary score according to the teaching evaluation criteria (Fig. 7).

5 The Characteristics and Innovation of the Curriculum

5.1 Interactive Teaching in Online and Offline Classroom

Combined with the characteristics of digital media art major and the reality of students, and combining the advantages of traditional teaching mode and mixed teaching mode, the online and offline interactive teaching mode based on flipped classroom is designed and practiced. With learning as the center, students as the main body and teachers as the lead, the platform for autonomous learning and group practice before class, the internalization and display of knowledge in class, and the expansion of after-class works.

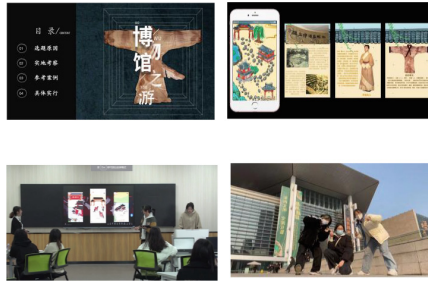


Fig. 8. The materials collected by the students before and after the field research and the presentation of their inspiration.

5.2 Multi-evaluation to Improve Students' Enthusiasm

To improve students' comprehensive ability, we should adopt diversified evaluation with diagnostic evaluation, formative evaluation and outcome evaluation, focusing on improving students' comprehensive ability, breaking curriculum silence and guiding students to participate actively.

5.3 Curriculum Resources are Scarce, Which Can Be Used for Reference and Promotion

"Mobile interaction design" comes into being with the rapid development of mobile Internet. This curriculum lacks high-quality curriculum resources for art students, and the construction of this curriculum fills this gap [20].

5.4 Integrating into the Cultural Self-confidence, "The Combination of Art and Morality, the Unity of Knowledge and Practice"

Before class, students are required to inspect museums or places of interest, make full use of the ideological and political elements in the design, and integrate excellent Chinese traditional culture and regional culture into the case. The knowledge is condensed in the value dissemination, and the value guidance is emphasized in the knowledge dissemination. In the specific teaching process, we introduce value-oriented cases and projects of certain social significance, carry out discussion and creation, effectively link the major of art and design with ideology and politics, and stimulate students' curiosity, initiative and participation. This arouse their enthusiasm for research and practice. On the issue of effectively balancing the relationship between students' skill learning and humanistic literacy, the talent training goal of "trinity" of knowledge, ability and politics has been established, and a model of "six combinations and three integration" has been established in curriculum ideological and political education. it has a breakthrough effect (Fig. 8).

5.5 Enhancing Students' Competitiveness in the Workplace and Expanding Their Entrepreneurial Style

By July 2021, the number of 4G mobile phone users in China has exceeded 1.2 billion, and the number of APP in the domestic application market has reached 2.91 million. All

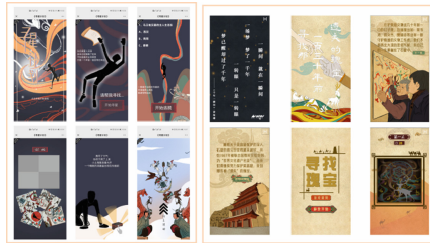


Fig. 9. Some students' classroom works

kinds of industries are based on the mobile Internet to transform the original products and services and promote the upgrading of industries and services. By learning the curriculum “Mobile interaction Design”, it will greatly enhance students’ competitiveness in the workplace and expand their entrepreneurial style.

6 Curriculum Evaluation and the Effectiveness of Reform

The students’ overall satisfaction with the curriculum under the mixed teaching mode is higher than that of the traditional classroom. Students generally believe that flipped classrooms improve their abilities in many aspects, including autonomous learning, teamwork, professional knowledge, learning initiative and critical thinking. In the process of teaching reform, students have obtained provincial university students’ innovation and entrepreneurship projects, national college students’ innovation and entrepreneurship projects, teachers have guided students to publish scientific research and a number of works, and some excellent mobile works have achieved excellent results in Dunhuang International Art Festival and College students’ Advertising Art Competition. The following shows a small number of screenshots of excellent work, with Dunhuang Mogao Grottoes and Mawangdui Han Tomb in Changsha as the theme, telling the story of passing through history. The works are published on the Internet, which play a role in inheriting Chinese culture and innovating Huxiang culture (Fig. 9).

7 An Empirical Study of Curriculum

The curriculum carries out empirical research in teaching, including pre-test questionnaire and post-test questionnaire. A comparative experiment was carried out between the experimental class and the control class. The empirical research of the curriculum has been carried out for four rounds with the development of the curriculum. The main forms include questionnaires, interviews and other forms. It mainly examines the improvement of students’ autonomous learning ability in the process of teaching innovation, including learning motivation, learning ability and so on. Practice has proved that the design of this curriculum is suitable for the teaching of this curriculum. Students can review anytime and anywhere, and even after taking part in the work, they can review the curriculum content and study on demand. The pre-test and post-test comparison of the research data, as well as the difference test of the control class in the experimental class, it can be seen

that the teaching model adopted in this curriculum can effectively cultivate students' autonomous learning ability. Through many rounds of teaching practice and feedback, we constantly adjust teaching strategies to provide students with more suitable teaching resources and teaching activities, and conscientious teaching obtains students' positive feedback.

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