Research on Project-Driven Flipped Classroom Practice Teaching Mode Based on Third-Party Platform

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ABSTRACT

With the progress of society and the development of technology, the world education in the 21st century turns to focus on the cultivation of 21st century skills. Under the new education development environment, in order to meet the contemporary college students' new needs of 21st century skills training, comprehensively improve the quality of talent training, this paper takes the course "Web Design and Website Construction" as an example, aiming at the pain spots of traditional teaching mode, guided by vocational ability training, driven by actual enterprise projects, and with students as the main body, propose a new project-driven flipped classroom practice teaching mode based on third-party platform, which can better realize the knowledge, ability and quality of the trinity of applied talents training target, greatly improve the quality of practice teaching, can effectively improve the students' professional skills and professional quality, to ensure the sustainable development of students.

Keywords: Flipped classroom; Project-driven; Practice teaching mode; Third-party platform

1. INTRODUCTION

With the progress of society and the development of technology, the world education in the 21st century has turned to the reform movement with the cultivation of 21st century skills as the core. In order to be comprehensively competitive, students in the 21st century must possess skills in three areas: learning and innovation, information, media and technology, and life and career. Among them, learning and innovation skills are the most critical, which are embodied in the 4C qualities, namely, Critical thinking, Creative thinking, Communicating, and Collaborating. Under the new educational environment of the 21st century, how to cultivate students' 21st century skills, especially the above-mentioned 4C qualities, is the common concern of all educators and also one of the important goals of modern education reform. At the same time, with the continuous development of network technology and online education, the new teaching environment and teaching situation make the college students' learning habits and demand have very big change. Contemporary college students pursue more free and personalized learning and effective use of information, media and technology to enhance learning and innovation ability and lifelong learning ability have become new learning demands of contemporary college students.

In order to adapt to the environment of world education development and meet the new needs of contemporary college students' skills training in the 21st century, this paper takes the course of "Web Design and Website Construction" as an example and takes vocational ability training as the guidance to propose a project-driven flipped classroom practice teaching mode based on the third-party platform. This mode takes the actual project as driven, student as the main body, ability as the standard, guided by the knowledge and abilities required to achieve project and with the help of online learning resources of third-party platform which teachers carefully selected and optimized combination and teachers' self-built resources to guide students through independent exploration and collaborative learning and practice complete the independent construction of knowledge and improve the ability to solve problems, so as to cultivate ability and habit of independent learning and lay a solid foundation for future lifelong learning.

2. RELATED WORKS

2.1. Project-driven Teaching

Project-driven teaching mode has clear direction and strong operability. As an effective means of practical training, it has attracted wide attention in recent years. Educators of various disciplines have tried this teaching mode one after another. As of December 5, 2021, a total of 2604 articles have been retrieved on CNKI under search condition based on the title: "Project-driven Teaching", among which Xu Rong, a teacher from Shanghai Jinyuan High School, was the first to study project-driven teaching. In 2003, he proposed a new teaching mode in article "Exploration of teaching mode driven by unit project," which combines knowledge points in the course materials into knowledge blocks, sets up unit projects with inquiry and application on the basis of knowledge blocks, so as to guide student-centered inquiry and research learning with unit projects, and closely combines knowledge learning and ability improvement [1]. Since then, people have gradually paid attention to and studied this new teaching mode. The research contents cover many courses of many subjects such as computer science [2], medicine and mathematics, as well as project-driven vocational education and talent training.

As of December 5, 2021, a total of 41 articles have been retrieved on CNKI under search condition based on the title: "Project-driven Web Design ". One of more representative is " Development and application of three-dimensional teaching materials for basic Computer courses based on Two-layer project-driven

Teaching Mode -- Taking Web design and production as an example", written by Guo Li and Ye Huiwen from South China Normal University in 2012, which proposes the project-driven teaching mode with two main project lines of classroom and experiment and the textbook design based on the two-layer project-driven teaching mode [3].

2.2. Flipped Classroom

The so-called flipped classroom is to reverse the traditional teaching process. The content originally taught in class is put before class for students to explore independently, and in class, it is used for communication, discussion, answering questions and practice improvement [4]. The continuous development and enrichment of online learning resources, such as open online courses, micro lessons and national elite courses, provide a great boost to the effective implementation of flipped classroom, making flipped classroom quickly become the focus of teaching mode reform in the information age. As of December 5, 2021, a total of 84,159 literatures have been detected on CNKI with the title of "flipped classroom" as the retrieval condition. Searchable domestic studies began in 2012, and the research on flipped classroom began to heat up continuously from 2015 (as shown in Figure 1). From 2015 to 2021, 45,759 literatures were published, accounting for 54% of the total detected volume. It can be seen that with the continuous development of network technology and online education, flipped classroom has a better foundation for implementation and has become the core of teaching reform in the information age [5].
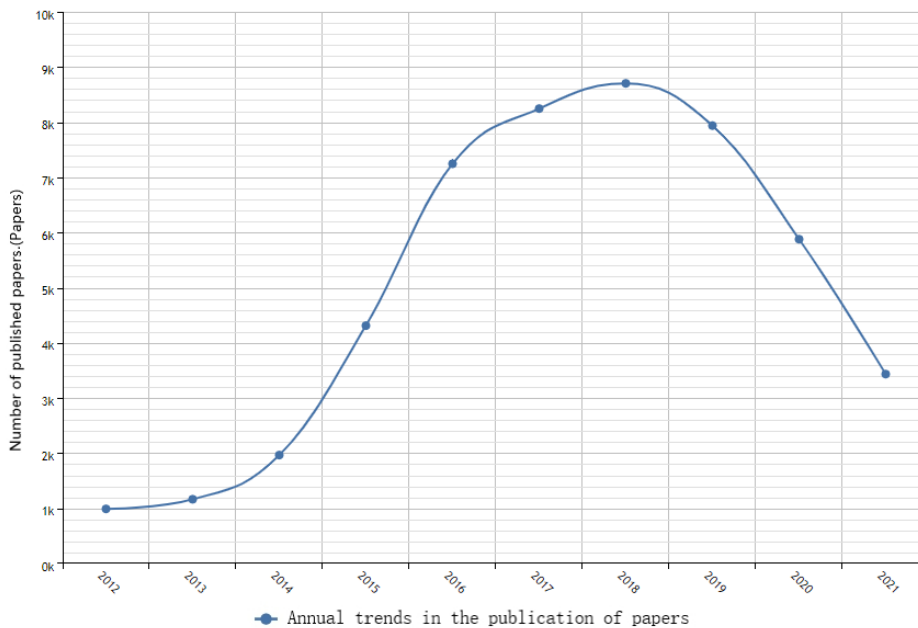

Figure 1 Annual trends in the publication of papers on "flipped classroom" from 2012 to 2021.

2.3. Online Education

Since the "open courseware" project was launched by MIT in 2001, online courses, with their open classrooms, convenient platforms for communication and discussion, and the sharing of teaching resources worldwide, have developed rapidly. China's Ministry of Education also attaches great importance to the construction of online courses and gives strong support. The Outline of the National Medium - and Long-term Education Reform and Development Plan issued by the Ministry of Education in 2010 stated that information technology has a revolutionary impact on the development of education and must be attached great importance. This strongly supports the development of massive online courses. The 2019 Government Work Report clearly proposes the development of Internet plus education, to promote the sharing of quality resources, which further greatly promoted the construction and promotion of open online courses.

Under the strong support of the national policy, China's online education is booming, China's university MOOC, micro class, all levels of all kinds of quality courses, open class, cloud classroom, rain classroom and other teaching platforms have mushroomed everywhere, all kinds of online learning resources blowout development. Users involved in online learning also exploded. According to the 48th Internet Statistics report of CNNIC, as of June 2021, the scale of online education users in China reached 325 million, accounting for 32.1% of the total Internet users.

3. THE PAIN SPOT OF TRADITIONAL TEACHING MODE

"Web Design and Website Construction" is an important professional core course of e-commerce and marketing, with strong practicality and comprehensiveness. There are three major pain spots as follows in traditional teaching mode.

- Unable to meet the individual needs of students. Due to the differences in students' learning ability, there are significant differences in students' learning progress and knowledge mastery. Traditional one-size-fits-all teaching cannot meet the diverse individual needs of students and difficult to attract students firmly.

- There is a disconnection between knowledge learning and knowledge application. In traditional online and offline teaching, the organization of teaching content and teaching process is usually carried out in accordance with the chapters of one some textbook. Most of them are inconsistent with the actual workflow of enterprises, and some of them even do not conform to the cognitive rules. The imparting of knowledge is often divorced from the actual application situation of knowledge. Students don't know what to do with and how to use the knowledge they are learning, which leads to the lack of motivation in learning, low enthusiasm and initiative in learning and low participation [6-7].

- Students' learning and innovation ability can't be well exercised and cultivated. The traditional teaching mode is often the teacher's one-way indoctrination. Students are only passive recipients, lacking the consciousness and ability of independent exploration and independent thinking. Students' 21st century skills and literacy of 4C can't be well exercised and cultivated.

4. CONSTRUCTION OF PROJECT-DRIVEN FLIPPED CLASSROOM PRACTICE TEACHING MODE BASED ON THIRD-PARTY PLATFORM

Aiming at main pain spots of the traditional teaching of "Web Design and Website Construction" course, the construction of project-driven flipped classroom practice teaching mode based on third-party platform needs include the following contents.

4.1. Selection and Deconstruction of Actual Enterprise Projects That Drive the Entire Teaching Process

The effective implementation of flipped classroom depends on the effective participation of students in each link of the teaching process. To ensure the effectiveness of student participation, the selection and design of projects used to drive flipped classroom is crucial. Only when the goal is clear and the result is predictable, can students' interest in learning and intrinsic motivation be stimulated and students actively participate in the whole learning process. Therefore, the selection and deconstruction of actual enterprise projects used to drive the whole teaching process is the key to the construction of the teaching model.

The balance of challenge and skill is the key in the selection and deconstruction of projects. Challenge is too big, easy to make students feel frustrated, and thus lose confidence; On the other hand, if the challenge is too small, students will lose interest. Therefore, the difficulty of selected project and deconstruction tasks is the key and should be strictly grasped. Only by finding a proper balance between challenge and skill can students avoid dissociation, immerse themselves in the project tasks, and complete the independent construction of knowledge and comprehensive improvement of skills in

the practical application of knowledge and skills in the process of completing the tasks.

4.2. Reorganization of Teaching Process

Project-driven flipped classroom is to overturn the traditional teaching process of imparting knowledge in class and realizing knowledge internalization after class. Therefore, an important part of the construction of flipped classroom teaching mode is the reorganization of teaching process to realize the reversal of teaching process. Firstly, the driving project is deconstructed into several sub-tasks, and then the teaching process of the whole course is divided into several teaching sub-processes based on these sub-tasks. Each sub-process is driven by a sub-project, including three links: pre-class, in-class and after-class. The task of pre-class is through task-driven and problem-guided to help students gradually complete the independent construction of the knowledge and skills required by the project tasks. The task of in-class is knowledge sharing and internalization. Teacher answers questions and doubts encountered by students in their pre-class independent exploration through class discussion and case demonstration, explains the key points and difficulties of project task realization, and together sorts out the knowledge and skills involved in project production with students to realize the internalization of knowledge. After-class is used for migration, application, expansion and improvement of internalizing knowledge. Thus the logic closed loop of pre-class, in-class and after-class is formed, so as to truly realize the seamless docking of theory and practice, and realize the effective transformation of knowledge to ability.

4.3. Design of Teaching Content Based on Cognitive Law

To realize the seamless connection between theory and practice, in addition to the reorganization of teaching process, the teaching content should also be restructured based on the actual project and work flow of the enterprise and the abilities required to complete the actual project. Making knowledge fit closely with the actual situation of knowledge application, teaching content fit closely with online assisted learning resources. So as to help students in the process of project advancement naturally and gradually complete the independent knowledge construction oriented to ability improvement.

4.4. Screening and Integration of Third-Party Online Teaching Platforms and Resources

In flipped classroom teaching mode, the learning quality of students largely depends on the quality of online learning resources. Although online teaching platforms are springing up everywhere and online learning resources are developing in a blowout way, the assistance to classroom teaching is not ideal. Therefore, in order to ensure the effective implementation of flipped classroom, it is necessary to carefully screen and integrate third-party online teaching platforms and resources based on driving projects, teaching process and teaching content redesign, so as to realize the online and offline collaborative education through the integration of industry and education and school-enterprise cooperation.

4.5. Monitor of Learning Process and Evaluation of Learning Effect

In order to ensure the effectiveness and quality of project-driven flipped classroom based on third-party platforms, students' learning process must be timely monitored and evaluated. Comprehensive, objective, fair and reasonable evaluation of learning effect can effectively stimulate students' enthusiasm for learning and enable them to experience the sense of achievement in learning, which is often the motivation for students to continuously immerse themselves in learning. Therefore, it is necessary to build a diversified, three-dimensional and all-round evaluation system based on the reconstructed new teaching process, so as to help teachers to timely evaluate students online and offline, fully master students' learning situation and comprehensively evaluate their learning effects. The specific contents are as follows:

- Process evaluation: including online and offline learning participation and learning effect.

- Developmental evaluation: including group task display, teacher evaluation, inter-group evaluation and intra-group evaluation.

- Evaluation of students' abilities in various aspects: autonomous learning ability, teamwork learning ability, communication and expression ability, problem-solving ability, computer application ability, etc.

Such evaluation system can effectively stimulate the enthusiasm of students to learn, so that students can get more sense of achievement and satisfaction, so as to better improve students' participation in learning.

5. CONCLUSIONS

Based on the current development of education technology and students' new learning needs, this paper proposes a project-driven flipped classroom practice teaching mode based on third-party platform to address the pain spots of traditional teaching mode. The advantages and practical value of this mode are mainly reflected in the following aspects.

First, it can effectively activate students' subject consciousness, practically improve their ability of independent exploration and collaborative learning, and make students truly become independent constructors of knowledge. What flipped classroom flips is not only the teaching process, but more importantly, the role positioning of teachers and students in the teaching process. In the project-driven flipped classroom teaching mode, students are no longer passive receivers, but independent constructors of knowledge, and students' subject status really returned. Student learning is a project-oriented, task-driven, and active inquiry behavior based on knowledge application context in order to solve practical problems. As a result, students learn with a clearer purpose, a stronger direction, and a stronger initiative and participation. Therefore, project-driven flipped classroom practice teaching mode can effectively cultivate students' habits and abilities of independent exploration and collaborative learning, effectively stimulate students' potential of independent thinking and solving practical problems, and make students truly become independent constructors of knowledge, laying a good foundation for sustainable lifelong learning in the future.

Second, it can realize the seamless connection between theoretical knowledge and practical operation. In project-driven flipped classroom, teachers immerse students in the practical application scenarios of knowledge through project task planning in different periods, and help them to complete the construction, internalization and transformation of knowledge through online and offline learning community activities. As a result, it can truly realize the seamless connection between theory and practice.

Third, it can truly realize deep learning and effectively improve students' digital literacy. Deep learning refers to learning that stimulates critical thinking, solves real problems in life, and is collaborative and self-directed. Digital literacy refers to the ability to reflect and identify digital information and critically extract useful learning resources in the Internet age. The project-driven flipped classroom and teacher-student co-construction of teaching resources based on knowledge sharing proposed in this paper can truly realize deep learning and effectively improve students' digital literacy.

Fourthly, it can lay a preliminary foundation for the subsequent construction of open online course platforms built by teachers themselves and the realization of the flipped classroom based on the self-built platforms. Open online courses are the overall trend in the development of current and future education, all colleges and universities are vigorously encouraging and facilitating the construction of open online courses. For colleges and universities with insufficient condition, they can first with the help of third-party platforms to realize flipped classroom and focus on the teaching design, teaching organization and teaching practice of flipped classroom. On this basis, they can carry out the preliminary construction of teaching resources. This can lay a good preliminary foundation for the subsequent construction of self-built platform and the natural migration of the whole curriculum to self-built platform, so as to realize the gradual curriculum reform step by step and stage by stage under limited conditions.

In conclusion, project-driven flipped classroom practice teaching mode based on third-party platform can better realize the knowledge, ability and quality of the trinity of applied talents training target, greatly improve the quality of practice teaching. In addition to helping students to realize knowledge construction, students' professional skills and professional qualities can be practically improved so that students can truly apply what they have learned. It can practically improve the 4C qualities required by students' future work, so as to ensure their sustainable development.

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