Online Research on Basic Training of Computer Culture Based on Flipped Information System Platform

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Abstract:Aiming at the current situation of computer culture basic course teaching, the flipped classroom teaching mode based on micro-course resources is applied to analyze the teaching effect and problems. The improvement of the ability to obtain and use information will also help to cultivate students' innovative ability, inquiry ability and self-reflection Ability and the spirit of democratic cooperation are of great significance to the overall improvement of students' quality. Using research methods such as comparative experiments, through the horizontal comparison of the autonomous learning ability of the students in the experimental class and the control class and the longitudinal comparison of the autonomous learning ability of the students in the experimental class, the flipped classroom teaching mode is obtained by analyzing and summarizing. Including the design of learning resource learning activity design, learning process design, learning evaluation design.

Keywords: Online Research, Computer Culture, Flipped Information System Platform

1. INTRODUCTION

With the rapid development of informatization in various fields around the world, computer information technology education has received more and more attention and has now become an important part of the modern education system. Especially in higher vocational colleges, the basic computer culture course has become a compulsory course for non-computer majors [1]. The development of contemporary information society puts forward new demands on the cultivation of college students' information ability and information literacy. Information literacy education has become an indispensable and important content. therefore. As the cradle of talent cultivation, colleges and universities generally offer the "Computer Culture Foundation" course, which is a compulsory basic course for college students [2].

"Computer Culture Fundamentals" is a compulsory public basic course for all majors in colleges and universities. It focuses on cultivating students' practical ability. As a practical course, it is necessary to apply theoretical computer knowledge to various practices. In actual teaching [3], computer hardware experiments are limited by many factors such as venue, time, and funds [4]. The preparation of equipment before class and the maintenance of later period require a lot of manpower and material resources. It is a carrier for students to independently carry out knowledge practice activities in a digital environment. It integrates and optimizes a series of teaching links such as guidance, teaching, self-study, interaction, and practice, and constructs the whole process of teaching integration of this course [5].

The ten-year development plan for education informatization (2011-2020) pointed out that it is necessary to promote the integration of information technology and teaching [6]. Build an intelligent teaching environment, provide high-quality digital education resources and software tools, and use information technology to carry out heuristics. During the "Eleventh Five-Year Plan" period, the informatization of primary and secondary education has been carried out. Represented by "Work Exhibition and Broadcasting Platform" and "Micro Course Network" [7], as well as the recent micro-course design evaluation for primary and secondary schools in

Shanghai Minhang District, which was launched to cooperate with the Shanghai electronic schoolbag project, domestic attempts at the practical level of micro-courses have begun [8]. In 2001, the Massachusetts Institute of Technology (MIT) launched the "Open Courseware" project (OCW). The world-renowned online video open courses, Khan Academy, micro-lectures, and TED videos and other online education resources became popular. Video production and application, provide a good reference [9].

The flipped classroom is a product of the Internet information age, and it is a teaching model derived from the Internet. It was initially tried by a chemistry teacher in the United States to solve the home learning problems of some students who asked for leave [10]. They uploaded their own teaching courseware with certain audio explanations to the Internet, and the students used the Internet to learn online at home. As a practical course that emphasizes hands-on ability, the current teaching form is mostly broadcast-style "one-to-one" teaching in the computer room [11]. The teaching method is that teachers teach and students listen. This method has a large proportion of lectures.

Not every university can provide sufficient information conditions to carry out the teaching mode reform of flipped classroom, so it has to continue to use the traditional teaching mode [12]. Does it copy the "flipped classroom" model in the United States? How to understand the essential connotation of the "flipped classroom" teaching mode. The reason for the lack of autonomous learning ability of these students is firstly that the traditional teaching mode of our country makes the students' "teaching" and "learning" seriously disconnected [13], resulting in passive learning and one-sided and single method. It lacks the spirit of active learning; the flipped classroom teaching mode was first introduced and applied by Jukui Middle School in Chongqing. It is the first school in the country to implement curriculum reform using information technology strategies. Its experience in using flipped classrooms is three "flipping", 4 major links before class, 5 steps in class [14].

In 2008, David Penrose of San Juan College in Mexico [15], USA, was the first to clearly put forward the concept of

micro-lectures [16], and proposed five steps for the construction of micro-lectures. The current "Computer Culture Foundation" course evaluation does not give full play to the function of evaluation to promote students' development. There are evaluation content that emphasizes book knowledge, single evaluation method [17], and students are in a passive position in evaluation. Interactive determinism believes that individual, behavior, and environment are three Interacting factors, in which the two-way interaction between any two varies with individuals, behaviors, and circumstances

2. THE PROPOSED METHODOLOGY

2.1 The Flip Information System Platform

Teachers optimize and integrate teaching content, analyze teaching content, and build an overall knowledge structure system. The overall teaching content of the basics of computer culture is divided into basic computer knowledge overview, operating system, office automation software, and computer network foundation. An important role in the "flipped classroom" is the "micro-lecture" video. Compared with the live version, the automatic version The "micro-class" teacher's lectures are more popular with students. Students can ask the teacher to repeat the study at any time, and students do not need to consider whether it will waste the teacher's time. The direction of talent training mode is to cultivate applied talents with innovative spirit and practical ability.

Flipped classroom is a reflection of teaching ideas and a good form of teaching organization. In the process of application, it is necessary to change ideas, carefully design and organize, carefully record or select high-quality micro-lectures, and take corresponding measures. Teaching strategies can really play its role and achieve the expected results. Under the concept of "flipped classroom", learning mainly relies on students to complete the learning process before class, and the course should not be too difficult, otherwise students will not be able to complete the learning process before class. At the same time, pre-class learning needs to prepare rich resources. If students are just holding a book to read and operate, it will be difficult to carry out effective learning. When talking about computer hardware, you can go to the nearby computer market to find some promotional materials, and send them to students before the class, so that they can choose the ideal computer according to different parameter configurations. Until the establishment of "Khan Academy" (Khan.Academy).

The number of instructional videos of Khan Academy continues to increase, and the content also expands into multiple fields, and the scale of Khan Academy is increasing, and Khan and his Khan Academy have popularized flipped classrooms around the world. The flipped classroom is translated from the English phrase Flipped Classroom. Compared with the traditional classroom teaching mode, flipped classroom is a teaching mode that is fundamentally different from the traditional teaching mode. There are many definitions of flipped classroom: computer science and technology majors cultivate applied talents with innovative spirit and practical ability in accordance with the undergraduate talent training model of broad caliber, solid foundation, multi-specification, and multi-direction. At this stage, there are a series of problems such as large classroom size, many students, and uneven understanding of students in basic computer courses in universities. Especially after Zhejiang University of Traditional Chinese Medicine recruited students nationwide, the differences between

provinces have become more prominent. Undergraduate students in some areas are not familiar with computers. The subject is a little unfamiliar, and I took the initiative to contact the teacher to express that it is very difficult to study this subject.

2.2 The Basic Training of Computer Culture Based on Flipped Information System Platform

At the same time, it is necessary to control the duration of each micro-class, 5 to 8 minutes is appropriate. In the process of making micro-lectures, according to the specific teaching content, the author chooses live classroom video, CamtasiaStudio screen recording software, or downloads animations and short videos that meet copyright requirements from the Internet, and reasonably organizes and presents the teaching content. The training goal of computer culture foundation course is not only to teach students to operate computers, but more importantly, to enable students to use computers to collect, analyze, process and apply information. The traditional evaluation method of basic skills of computer culture is to carry out standardized computer tests. In recent years, due to the advancement of science and technology, the application cost of virtual reality technology has dropped significantly and the functions have become increasingly rich. my country has begun to gradually carry out research and application of virtual reality.

However, the real research history is only more than ten years old. In 1996, Tianjin University used virtual reality technology to develop a virtual campus system, which opened the prelude to the application of virtual reality in the field of education in my country. The test system is added in the test center, so that students can practice repeatedly for the computer application ability test system of Tianjin Higher Vocational College, improve students' operation ability in using the test system, and at the same time enable students to experience the continuous improvement of scores after repeated practice. Happy. The computer major has strong applicability, and the practice teaching link is especially important. The quality of practical teaching directly affects students' application ability. But at present, practical teaching is a weak link in our country. Students generally lack targeted practical exercises and are unfamiliar with the working environment. Situational micro-lectures.

Scenario-style micro-lectures are rarely used in current teaching. Some teachers will edit some existing videos and other materials to add to their own teaching. However, it is difficult for teachers to record such micro-lectures by themselves. Students must master certain common basic courses, such as college English, advanced mathematics, circuit foundation, etc., professional basics and professional compulsory courses, such as C language programming.

The flipped classroom really opens up the pre-class, in-class and after-class, so that students can Get more comprehensive guidance and supervision, and provide students with a full range of teaching guidance and learning practice application platform. Especially in the basic teaching of computer culture, students have more time for independent study.

2.3 The Online Research on Basic Training of Computer Culture

Therefore, the evaluation of the basic skills of computer culture can be evaluated through the electronic works of students collected by the electronic file system, or the

evaluation of electronic works can be combined with the traditional standardized computer test. An important part of the performance of students' academic achievements collected in the electronic file system of Computer Culture Foundation Program is the electronic works produced by students. Use Virtools' action behavior module Building Block (BB) to realize specific events. BB is a set of description files that describe "how the component should act or react under certain conditions or given events". Each behavior module has its own action behavior function.

In order to better evaluate the effect of online teaching, we selected the students in Class 1 and Class 2 of Mechanical Manufacturing Automation of the 10th grade with comparable entrance scores and the students who participated in the first-level computer examination in the whole school for comparative analysis. The curriculum system is established through a long-term teaching practice process and research. It has a certain systematic and scientific nature. There are mutual connections between courses. At the same time, studying this course will pave the way for subsequent courses. Launch these three types of online "micro-course" learning resources for students to learn and compare their learning effects, understand the current situation of "micro-course" practice, and grasp their respective advantages and disadvantages. Find out the construction method of "micro-course" course resources suitable for the basic education of computer culture for undergraduates. However, the summary and reflection after class is also a very important part of knowledge learning. After class, students need to reflect and summarize their classroom learning, and further build their own knowledge system in the process of reflection and summarization. Consolidate their knowledge base and application ability foundation. The design of micro-lectures needs to be short and concise. Micro-lectures are mainly aimed at some special problems. Students can master many basic computer knowledge without micro-lectures.

3. CONCLUSIONS

The flipped classroom teaching mode based on micro-course resources can improve students' autonomous learning and inquiry ability, promote students' knowledge mastery, and strengthen students' self-awareness. The flipped classroom is suitable for the subject of computer culture, but it is not suitable for all subjects. Other subjects should be based on the knowledge system of the subject and the goals that students need to achieve. The smooth implementation of the flipped classroom is closely related to the ability of teachers. First, teachers must have excellent skills. Professional knowledge, in addition to have the corresponding teaching ability, flexible use of modern technical means to provide students with a variety of teaching methods.

4. ACKNOWLEDGEMENT

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