Practical Research on the Flipping Classroom Teaching Model of Integration of Information Technology and Curriculum Based on "Intelligence Tree + SPOC"

Yang Qiong

Department of Information and Technology, Qiongtai Normal University, Haikou Hainan, 571100, China

Keywords: Digital Education Resource Platform; Flipped Classroom Construction; Wisdom Tree; SPOC; Flipped Classroom; Professor Model; Applied Research

Abstract: Under the information environment, the popularity of mobile learning, distance education, online learning and ubiquitous learning is rising. The educational reform in the new era has become an inevitable adaptation of modern educational technology as the use of educational services. This paper studies the mode of "information technology and curriculum integration" based on SPOC + Digital Education Resource Platform (Smart Tree). The results show that teachers'experimental ability has the effect of improving learners' comprehensive ability and learning effect, avoiding teachers'repeated labor, and realizing innovative guidance. However, compared with traditional education, students'academic achievements are more obvious and teachers face greater challenges. Therefore, improving students'self-learning ability and teachers' information literacy is an important way to improve the effect of education.

We are actively based on "Intelligence Tree + SPOC", exploring the establishment of models, and selecting models from the educational practice of basic courses. Finally, through the evaluation of the educational effect, we can find out the problems and improve the model. Intelligence Tree + SPOC "Integration of Information Technology and Curriculum" and related concepts of theoretical basis, combined with the previous education, educational activities and the implementation of educational evaluation, prepare for the beginning of a complete process of educational activities. As an application case, the Integration of Information Technology and Curriculum is introduced. Based on Prelude analysis and resource design, the teaching results are evaluated from three aspects: learning process, learning results and student evaluation. Combining the process of curriculum implementation with the results of education effect evaluation, we find that there are problems in the model, and constantly improve the model.

1. Introduction

With the globalization of information and the internationalization of education, the concept of open resource sharing has gradually taken shape all over the world[1]. In this context, the development of the open education resources movement around the world has bred a tree of wisdom. Focusing on the characteristics of interaction, large-scale, open and online has attracted the attention of educators all over the world, and has become a hot spot in the field of education. In recent years, the intelligent tree has developed rapidly and become an important channel for people to acquire knowledge in the era of big data. However, rejection rate and failure rate lack the training effect of intelligence tree. The idea of wisdom tree is embedded in the reversed classroom, and the folded classroom is realized on the educational platform of wisdom tree, which can not only share high quality resources, but also optimize the educational effect. As a high-quality open education resource, SPOC provides good support in a classroom. Spcc's "small-scale" and "ownership" are the optimum conditions for carrying out flipped classroom teaching. Therefore, based on "Intelligent Tree + SPOC" to implement the education model of flipping classroom teaching to promote education reform is a major advantage[9].

As the integration of information technology courses in cognitive technology, it is a powerful way to learn in the information age. Therefore, under the background of modernization and informationization of Chinese education, it is very important to unify information technology and

  DOI: 10.25236/icetem.2019.209

curriculum, to cultivate students'innovative spirit and practical ability.

2. To Sort out the Relevant Research Reviews and Analyze the Theoretical Basis.

With the development of educational informationization, the globalization of educational resources, the individualization of education, the acquisition of wisdom and the autonomy of learning have become an inevitable trend. The rapid development of Internet information technology has greatly affected the technology and culture of the state, society, economy, education and intelligence. "Internet + education" has also become the mainstream of China's educational development.

In the field of education, the Intelligence Tree + SPOC learning model is a relatively fixed, structured traditional curriculum content of the curriculum model changes the new online learning model of the Intelligence Tree. Building a tree of wisdom + SPOC tree of wisdom can reflect the characteristics and requirements of school education and meet the individual learning requirements of students. Wisdom Tree also helps students learn online and offline, making teachers'views more effective from the perspective of students. This is the interaction of tree-guided independent learning in order to help students get the best learning results[2].

In the process of learning, teachers use "Wisdom Tree + SPOC" to teach them, guide them from simple knowledge, and help them learn. Teachers'roles are created by the whole classroom. Wisdom tree is the main work is to guide students to better learn and learn experience. In order to teach the learning mode of intelligent classroom, students will look at the tree of wisdom and learn by video in front of the classroom according to the teacher's request. In the classroom, teachers are the basic knowledge confirmed. They need not only a small amount of time, but also more time for the discussion and expansion of children and students [3]. The traditional teaching of the wisdom tree in the classroom lacks in order to improve the effect of education and learning, and to be able to use it. In the context of information technology, teachers in the classroom of a single tree of wisdom to convey knowledge, focusing on classroom guidance or organization can return to student initiatives, motivation focus, autonomy training, improve students'innovation and creativity. Finally, it introduces the tree of wisdom, and makes the tree of wisdom + SPOC [4]. Intelligence tree has solved the problems of teacher training and insufficient curriculum resources, changed the concept of teacher training, solved the problem of teaching ability, and promoted the development of teacher training, as shown in table 1.

Table 1 "Information Technology and Curriculum Integration"

Book catalog
Chapter 1 Overview of Information Technology and Curriculum Integration
Chapter 2 Theoretical Basis of Information Technology and Curriculum Integration
Chapter 3 Teaching Mode of Information Technology and Curriculum Integration
Chapter 4 Education Resource Library Design and Development
Chapter 5 Network Course Design and Development
Chapter 6 Special Learning Website Design and Development
Chapter 7 Design of Web-based Learning System
Chapter 8 Evaluation of Information Technology and Curriculum Integration
Chapter 9 Cases of Information Technology and Curriculum Integration (Disciplinary Perspective)
Chapter 10 Cases of Information Technology and Curriculum Integration (Integrated Model Perspective)
appendix
References [1] Reference material 1. Information Technology and Curriculum Integration

3. Based on the Wisdom Tree, a Flipping Classroom Teaching Mode Based on Wisdom Tree + SPOC is Constructed

Three basic modes of information technology curriculum integration.In the integration of information technology courses, the overall ability of information technology and goals as cognitive tools is the same [5]. However, the role of information technology in different fields is different. Therefore, the integration of the Information Technology Section will be divided into three basic teaching modes[7].

Information technology courses, information technology information technology courses for learning purposes, are provided as professional areas that focus on the use of basic skills and basic tools of information technology.

Merging with other fields as an educational tool for information technology. Students use information technology to learn under the teacher's organization. Information technology is used exclusively for teaching in other fields.

Research as a learning tool, active learning of basic courses, students in information technology through information exchange, exchange of scientific research on information, and the use of different means to complete the research topic in the form of computer work. The curriculum design of the three information technology curriculum integration models was taught in a task-driven manner. In different modes, you can drive different modes according to the same task, so we can't distinguish between different classes [8]. However, for the three modes in different directions, students need corresponding educational requirements, teaching methods and necessary skills.

4. According to the Established Model, the Implementation of "Information Technology and Curriculum Integration" Designed by "Smart Tree + SPOC" is Taken as an Example

4.1. According to "Wisdom Tree + SPOC", flipping classroom teaching refers to a mixed teaching mode of classroom teaching and online teaching.

This is a study and reform of the implementation of pirated classroom education with video and online assessment of smart classrooms. Visiting the classroom changed the teacher's education model and the student's learning model, giving students the right to learn. Although the teachers have taught at the lecture, the students are studying outside the classroom. In the classroom, students are more active, focusing on program-based learning, and teachers have more time to communicate with each student to improve the quality of classroom instruction. The model mainly includes four stages, namely, SPOC, student pre-class study, teacher and student joint classroom activities, and tutoring for teachers.

1) SPOC. A platform based on a smart tree. According to the needs of the study guide, students will provide learning resources such as videos, problem solving libraries, production materials, etc., and establish an online learning platform before class. The teacher will organize a small group of students (according to the class) to prepare questions for students and students.

2) Students learn before class. According to the teacher's assigned learning tasks and guidance questions, the students watched the mini-video in front of the classroom to complete the learning content. In the process of watching TV, it can reflect the self-discipline of students and adjust the video content.

3) Teachers and students work together in class activities.

The main activity students in our class can complete the internalization of knowledge by organizing students to conduct research, joint learning and interactive communication [6].

4) Tutoring for teachers

The problem is to summarize and optimize the content, means and methods in the teaching process, further improve the teaching mode, improve the teaching effect, and promote the development of teachers themselves. At the end of each course, students participated in the “SPOC + Smart Tree” discussion, and further integrated the class's learning knowledge, practiced the results, participated in the discussion, and completed a semester's total score week training.

4.2. Specific implementation and impact of classes

In the teaching process, knowledge about computer software and hardware systems is selected to perform an inverted educational model. The implementation process is divided into pre-production preparation and learning, classroom presentation and discussion, subsequent school improvement and presentation, and mutual evaluation and evaluation of students.

1) Preparation and research before class.

2) Packetization: Each class is divided into three groups. It is one of the leadership and sub-team leadership of each team. Each group is freely grouped, and a list of each group is transmitted to the teacher's designated mailbox in advance.

3) Question: Teachers will discuss and ask questions based on the content, and then each group chooses these questions.

4) Learning: On the “Smart Tree + SPOC” platform, we can get data about additional teaching from the video content specified by the teacher.

5) Production: The group will discuss and make learning results for PPT.

4.3. Publication and discussion in the classroom.

Divided into trilogy in the classroom:

1) Display: The group is segmented at random, the teacher follows the group's work, in order to display the student assignment, then, the operational demonstration must be combined with the actual problem, and others can make up.

2) Discussion: After each group is presented, students and teachers of other groups ask questions, and members of each class can answer questions.

3) Summary: The teacher summed up the discussion of the whole class and summarized the key and difficulties.

4.4. Improvement and submission after class.

1) Improvement: Each team will be on the display according to the questions raised by the teacher and classmates.

2) Submission: Submit the work to the FTP server according to the teacher's request.

4.5. Students evaluate and evaluate each other.

The work submitted by the students will be published on the WeChat public platform we have established. Students and teachers independently evaluate their work, calculate scores, and ultimately score based on the student's classroom grades.

4.6. Evaluation

"Smart Tree + SPOCk" can not only learn online, but also learn in the normal education mode. Integrate students' online learning and offline learning, and carry out procedural evaluation and summative evaluation and evaluation. The Smart Tools platform records learning on the student's website. Online video assessments and online discussions can be used as a sum assessment for online and offline testing, but they can also be used as indicators for forming assessments. Therefore, it is necessary to have a complete "wisdom tree + SPOC" to flip the learning assessment indicators of the classroom teaching environment.

4.7. After-school training

After-school training, students are required to integrate what they have learned in the previous class. Students must complete post-school exercises on the platform. The Smart Tree has an automatic detection program that allows students to submit programs multiple times correctly. The teacher can give individual guidance to the students according to the students' classes, thus forming a summative evaluation of the students.

4.8. Course assessment method

The score of this course is 100 points, and the final score is 50 points. The scores of other parts

are shown in Table 2.

Table 2 course assessment of other parts of the results

Assessment link	Score ratio /%	Assessment/evaluation rules
(1) Jobs, tests, discussion areas on the SPOC platform	15	Weekly homework, quizzes, and discussion area completions on the SPOC platform
(2) Class size flip and quizzes	10	Class size flip and quizzes
(3) On the computer test	20	Based on the results of the two comprehensive knowledge stages on the computer test, each time 10% each
(4) Experimental report	5	Students complete the experiment report
Final grade of the course = (1) + (2) + (3) + (4)		

5. Conclusion

In the "Internet + Education" environment, this study proposes a "smart tree + SPRC" flip classroom teaching model. Also, a reference to relevant curriculum reforms that combine information technology and curriculum integration courses. Moreover, in order to form a more complete teaching mode and implementation plan, the teaching effect of the "Wisdom Tree + SPOC" online and offline mixed flip classroom teaching mode can be better improved.

According to the existing research, this paper explores the flipping classroom teaching mode based on "smart tree + SPOC". In the empirical research of the intelligent tree internship object, the "information technology and curriculum integration" course is used to obtain the various modes of education and teaching. Aspects of the impact.

1) In terms of students, that in order to improve students' self-learning ability, it helps to promote personalized education. The SPOC+Smart Tree Platform provides students with greater autonomy.

2) The teacher's point of view. This will help improve the education level of teachers and improve their design capabilities. In the face of the learning environment and new educational ideas, the teacher must do all the preparations. He must first do it with the concept of ideology. Then, teach your wisdom. change.

3) Educational resources. The use of high-quality educational resources has been expanded to realize the development and sharing of educational resources. In addition, there is also the importance of improving the fairness of education. Under normal circumstances, ordinary universities and universities are not the main body of the Tree of Wisdom Tree. The teacher is not the developer of the course. Through this model, students of ordinary university wisdom trees can also learn famous teachers and famous classes.

4) Teaching effects. When using the flip classroom teaching mode, students should watch the video of learning the wisdom tree in front of the classroom at the teacher's request. In the classroom, you can use more time to confirm your basic knowledge. Expanding the discussion with students can improve the inadequacies of traditional classroom teaching and improve the efficiency of teaching and learning.

Acknowledgement

In this paper, the research was sponsored by the college education and teaching reform in Hainan province---- the research result of “Practical research on flipped classroom teaching mode based on "smart tree +SPOC" information technology and curriculum integration”. Project number: Hnjg2019-98.

References

[1] Li Fengxia, Chen Yufeng, Yu Yue, et al. Collaborative construction and thinking based on MOOC/SPOC . Computer Education, 2016(1): 17-18.

[2] Zeng Xing, Li Guiping, Zhou Qingping, et al. Deep learning field construction of MOOC and flip classroom integration . Modern Distance Education Research, 2016(1): 41-49.

[3] Su Xiaohong, Zhao Lingling, Ye Lin, et al. Exploration and practice of hybrid teaching based on MOOC+SPOC . Chinese University Teaching, 2015 (7): 60-65.

[4] Chen Ran, Yang Cheng. SPOC mixed learning mode design research. China Distance Education, 2015 (5): 42-47.

[5] Chen Xiliang, Jiang Feng, Lai Jun, et al. Research on Computer Basic Teaching Reform Based on Hybrid Teaching Mode. Computer Education, 2016(6): 143-146.

[6] Ma Lili, Chen Jinguang, Xue Jiwen. Practice of Flip Teaching Mode in Programming Language. Computer Education, 2016(4): 152-155.

[7] Yan Yan, Zhao Xiwu. Let the MOOC landing "Computer Foundation One" flip classroom teaching. Computer Education, 2016 (4): 110-113.

[8] Wang Pengjiao, Duan Tingting, Cai Yunan, et al. Application research of SPOC-based flipping classroom teaching design mode in open universities. China Electro-education Education, 2015(12): 79-86.

[9] Xue Yun,Zheng Li.Exploration and reflection based on SPOC flip classroom teaching mode. China Electro-chemical Education,2016(05):132-137.