Top Journal of Educational Technology
Vol.6, Issue 5; September - October 2021;
1252 Columbia Rd NW, Washington DC, United States
https://topjournals.org/index.php/TJET/; mail: topacademicjournals@gmail.com

LEARNING-CENTERED BLENDED TEACHING REFORM: AN EXPLORATION AND PRACTICE

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Abstract: This paper discusses the learning-centered hybrid teaching mode in colleges and universities. The paper takes improving students' learning initiative as the core, and takes the students of the Computer College of Guangdong University of science and technology as the sample. Based on the teaching reform practice of C language programming, the paper discusses the learning-centered hybrid teaching mode from three aspects: curriculum teaching design, curriculum teaching resource construction, and students' learning effect evaluation. The paper argues that the learning-centered hybrid teaching mode can help to improve students' learning initiative, promote the cultivation of innovative and critical thinking, and gradually form a teaching mode suitable for the characteristics of private college students.
Keywords: learning-centered hybrid teaching, curriculum teaching design, curriculum teaching resource construction, students' learning effect evaluation, first-class undergraduate courses, teaching reform, higher education, student learning, teacher-student interaction, student collaboration, innovative thinking, critical thinking

Introduction

Classroom teaching is the core link of talent training and the basic guarantee to improve the quality of talent training. The Higher Education Department of the Ministry of education pointed out in the implementation opinions of the Ministry of education on the construction of first-class undergraduate courses that "reform methods and make the classroom live. Innovate teaching methods for the purpose of improving teaching effect". Strengthen classroom design, solve the problem of how to teach well, and put an end to the phenomenon of simple knowledge transmission and ignoring the cultivation of ability and quality [1]. Therefore, it is necessary to improve the curriculum teaching design, strengthen the teacher student interaction, drive the student interaction, strive to promote the cultivation of innovative and critical thinking, change the original traditional teaching mode in which teachers are full and students are listened to, and explore the learning centered hybrid teaching reform[2], so as to meet the new requirements of the teaching reform and development of higher education in China, and more effectively promote the concept innovation, content innovation and mode innovation of curriculum teaching. Taking improving students' learning initiative as the core, taking the students of the Computer College of Guangdong University of science and technology as the sample, and based on the teaching reform practice of C language programming, this paper focuses on the discussion of the learning centered hybrid teaching mode in Colleges and universities from three aspects: curriculum teaching design, curriculum teaching resource

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construction and students' learning effect evaluation, so as to gradually form a teaching mode suitable for the characteristics of private college students, It can accelerate the construction of first-class undergraduate courses in application-oriented universities.

1. Analysis of the Current Situation of Course Teaching

For a long time, in the undergraduate teaching process of C language programming, teachers have done a lot of exploration and practical work in curriculum teaching design, curriculum resource construction, curriculum assessment method reform, teaching organization and implementation and so on. For example: the construction of project case base and the implementation of project teaching; Write electronic handouts, make PPT, build a large number of exercise banks, and implement the classroom mode of learning while practicing while speaking. However, in fact, students' interest in learning has not been significantly improved, their knowledge mastery has not been significantly strengthened, and their practical ability has not been particularly improved. Especially when there is a relationship between prerequisite and follow-up courses, students' debts in prerequisite seriously affect the teaching effect of follow-up courses.

Students lack enthusiasm and initiative in learning [3]. Before class, the preview task assigned by the teacher is not clear, and the students will not preview if they have no goal, or even if the preview is superficial and not deep enough. In class, they passively wait for the teacher's explanation and lack active thinking; After class, students will not summarize, so it is difficult for them to establish a more complete knowledge system.

In the long-term teaching process, we find that there are great differences in students' learning objectives, points of interest, knowledge level and logical thinking mode. Therefore, we must change the teaching concept, explore the implementation of learning centered blended teaching[4], redesign the implementation methods and means of teaching and learning, carefully design the three stages before, during and after class, accurately build and reasonably use teaching resources, which can effectively stimulate students' interest in learning, better mobilize students' enthusiasm and initiative in learning, and strengthen students' knowledge ability and improve their practical ability, It has certain practical significance to promote the cultivation of students' innovative and critical thinking.

2. Exploration and Practice of Learning-centered Blended Teaching Reform

In the traditional classroom teaching mode, teachers play a main role, and students can only accept the arrangement of teachers to complete their learning. They are the passive recipients of knowledge and belong to the typical "input orientation".

The learning centered blended teaching mode realizes the teaching transformation from "input orientation" to "learning achievement orientation"[5].Based on OBE, teachers reasonably design teaching contents and arrange learning tasks in three stages before, during and after class. In the process of completing these tasks, students find problems independently, and then under the guidance of teachers, solve problems through experiments or investigations, collect information, or carry out discussions among students and communicate with teachers, so as to obtain knowledge and improve their ability. According to learning needs, teachers establish teaching objectives, clarify students' learning tasks, build and improve online and offline teaching resources, and realize the scalability of teaching in content, time and space. According to students' individual differences, multi-

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dimensional and multi-level evaluation standards are formulated to stimulate students' enthusiasm for continuous learning. The specific contents of the reform are as follows.

3.1. Course Teaching Design Based on OBE

Outcome based education (OBE) refers to that the goal of teaching design and teaching implementation is the learning outcome that students finally achieve through the educational process.[6]Therefore, curriculum teaching design mainly includes three stages: the establishment of teaching objectives, the process of teaching implementation and the results of curriculum output.

The determination of teaching objectives is to design courses in the form of reverse matrix [7].Starting from the graduation requirements, teachers set the ability index system of the course and clarify the teaching objectives of the course through investigation, analysis and demonstration. On the basis of clarifying the ability indicators and curriculum objectives of the course, the teaching content is refined and the teaching methods are clarified.

In the process of teaching implementation, teachers should think about what to teach and how to teach when preparing lessons? What and how should students learn? How to promote students' active thinking, actively complete learning tasks, achieve learning objectives, and then determine teaching methods and means. Teachers should clarify what content students can learn by themselves, what content students can learn from each other, what content needs to be taught and how to speak, and then redesign the learning tasks before, during and after class, and run through them with inquiry, heuristic and other teaching methods[8].

Before class, teachers provide preview resources, assign specific preview tasks, preview the expected objectives to be achieved and preview thinking problems. Students understand and master the content they can learn independently through self-study, and test the completion of preview tasks and preview effects through online preview test; If students encounter common problems in the course, they will be guided to discuss and solve them in a unified way.

Change the teacher centered teaching method in the classroom, preset the problems to be explored according to the content of each class, inspire students to think, solve key and difficult problems and contents that have not been learned in autonomous learning through group discussion, teacher explanation, peer assistance and mutual questions, and test the classroom learning effect through online test; At the same time, teachers use mind mapping to show the curriculum knowledge system structure in the classroom, and guide students to draw mind mapping for summary after learning each unit course, so as to improve the systematic of students' knowledge structure.

After class, consolidate and deepen the content of this class through homework, practice and expanded reading, so as to promote students' continuous thinking on the principle and application of knowledge. Use learning link, Wechat course group, Q &a live room to carry out teacher student interaction, student interaction and other activities to answer students' questions.

In the stage of course output, continuous assessment and process monitoring are implemented [9].The assessment results need to be fed back to the students in time, which can not only make the students understand the deficiency, but also strengthen the knowledge and skills they do not master to make up for the deficiency; It can also facilitate teachers to control the teaching effect, so as to adjust and improve the course teaching in time.

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3.2. Building Teaching Resources According to Learning Needs

Following the principle of "anywhere and anytime as long as learning needs", software and hardware teaching resources integrating classroom, laboratory and network resources have been established to improve the extension of teaching content, time and space, and provide more support for students' autonomous and personalized learning[10].

Extension of time: Through information platforms such as superstar learning link, learning tasks after class are arranged to enable students to make full use of their spare time to study independently at any time.

Extension of space: Make full use of the online learning resources of IT enterprise Technology College, and set up online learning courses for students without restrictions from classrooms and laboratories. While enriching teaching resources, it is also convenient for students to understand industry development and mainstream technology.

Extension of content: Select the platform resources suitable for students from MOOC and other platform resources to push, as an auxiliary and supplement for students to complete extended learning after class.

Continuous improvement: After cutting and transforming the real project cases of the enterprise, they are added to the course practice case base and kept dynamically updated [11].

The construction of software and hardware resources of the course is carried out in key points and stages, enriching the construction of project library, case library, test question library, homework library, teaching materials, project experiment instructions, micro class, video, MOOC, reference materials, etc., so as to promote the deep integration of information technology and education and teaching, and provide the possibility for students to study independently after class [12].

We explored the reform of the laboratory experiment mechanism of the laboratory open reservation system and adapted the original in-class experiments to open reservation experiments after class. According to the teaching objectives, teachers arrange the experimental tasks to be completed in the laboratory. Students make an appointment for the laboratory after class, complete the experimental design, debugging and operation in the laboratory, and submit the experimental results through learning. According to the experimental report, source code and screenshots of operation results provided by students, teachers evaluate their grades according to the inspection standards.

An open laboratory reservation mechanism should be established to allow students to make full use of their spare time to use laboratory equipment, which can be used not only for coursework experimental tasks but also for experiments of personal interest. It can not only promote students' autonomous learning, but also improve students' learning enthusiasm and initiative, so as to better stimulate students' interest in learning.

3.3. Multi-Dimensional Personalized Criteria of Assessment

The traditional procedural assessment standard evaluates students' learning achievements, ignores students' individual differences, and the evaluation of students' learning achievements is also one-sided [13]. Taking learning-centered and according to the teaching objectives of the course, the assessment method is determined and the hierarchical assessment is implemented [14]. According to the individual differences of different students, personalized multi-dimensional assessment standards are formulated. Knowledge learning and assessment are

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divided into different levels, and personalized evaluation dimensions and grades are formulated to further stimulate students' enthusiasm for continuous learning. At present, the composition of the total score of the course only includes three dimensions: classroom, experiment and examination. On this basis, it is planned to add four dimensions: competition, certification, internship and innovation. The assessment standard is adjusted to "total score = experimental dimension + project dimension + examination dimension + comprehensive achievement dimension", forming a multi-dimensional personalized assessment standard.

Standards are formulated to encourage students to participate in discipline competitions related to their majors, and students' competition scores are converted into the scores of the competition dimension of the course. The standard is formulated to encourage students to obtain industry certification. According to the level of certification obtained by students, it can directly replace the course credits or transfer to the score of certification dimension. The standard is formulated to encourage students to participate in enterprise internship, and the score of internship dimension is given according to enterprise evaluation. The standard is formulated to encourage students to actively apply for college students' innovation and entrepreneurship projects, and give the score of innovation and entrepreneurship dimension according to the level and completion of large-scale innovation projects. In this way, students' enthusiasm to participate in discipline competitions and obtain certification, and their autonomy to participate in enterprise internships and R & D innovation projects have been greatly improved.

4. Conclusion

Since the implementation of the learning centered blended teaching reform, students' time in curriculum learning has increased greatly. As shown in Figure 1, it is a study time survey for a teaching class. More than 50% of students in each class take the initiative to study the course for more than 2 hours (including doing homework, reviewing the content of this class and previewing the content of the next class).

option	total	proportion
More than 3 hours	24	27.91%
2 hours	21	24.42%
1hour	26	30.23%
Less than 1 hour	8	9.3%
Less than half an hour	7	8.14%
time	86	

Figure 1: Example of the learn time survey

Although judging the effect of the reform through learning time is one-sided, it is not difficult to see that the implementation of the learning centered hybrid teaching reform has effectively promoted students' active learning,

which will enable students to understand the methods of knowledge exploration, help students transfer, integrate and creatively apply knowledge, and build their own knowledge system[15].

In the future teaching, we will continue to implement the core concept of higher education centered on student development, from emphasizing the improvement of teaching ability to focusing on the cultivation of learning ability, strengthen process evaluation and feedback, continuously improve and optimize classroom teaching mode, and help students improve their learning ability to meet the needs of future development and change.

Acknowledgment

This work was supported by Higher Education Teaching Reform Project of Guangdong University of Science and Technology (GKZLGC2021085).

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