

Promoting Teaching Reform in Higher Education Institutions through Flipped Classroom

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Abstract: Flipped classroom has become an important teaching form in the teaching mode of higher education institutions. This article analyzes the revolutionary transformation brought by flipped classroom from three aspects: teachers, students, and teaching effectiveness. It further discusses the important role of flipped classroom in teaching reform and provides new perspectives and ideas for higher education teaching reform.

Keywords. Flipped classroom; Learning outcomes; Reform in education

INTRODUCTION

With the continuous development of social informatization level, the concept of innovation leading the future has deeply penetrated people's hearts. Therefore, social resources are increasingly inclined towards knowledge and innovation, and high-level talents who master knowledge and lead innovation have become the focus of competition at the international level [Huang, et. al., 2022]. The key to national development lies in talent, and the competition for talent ultimately lies in education. The national demand for knowledge and innovation has been transformed into a demand for high-level talents, which presents opportunities and challenges for higher education institutions and urgently requires reform and innovation.

In recent years, the concept and methods of flipped classroom have gradually attracted attention from the education industry both domestically and internationally, and their scale and scope are constantly expanding. The arrival of the flipped classroom era indicates that educational information technology has shifted from "adding technology to existing schools" in the early days to "using new media technology to trigger reform and reconstruction of traditional school education" [Wu, 2024, et. al.,]. In traditional teaching models, students are often in a passive state of receiving knowledge, lacking opportunities for in-depth understanding and practical application of knowledge. Flipped classroom emphasizes students' active learning and participation, effectively enhancing their critical thinking and practical application of knowledge.

PROMOTE THE IMPROVEMENT OF TEACHERS' ABILITIES

Promote the diversified development of teachers' teaching skills

The application of flipped classroom cannot be separated from new media platforms, and teachers should actively use new teaching methods to enhance the effectiveness and fun of learning. When the environment of knowledge circulation shifts from offline to online, teachers need to quickly adapt to changes in teaching environment and conditions, and guide students to learn theoretical knowledge and professional skills more actively by developing interesting and interactive online flipped classroom teaching activities [Wu, 2020, et. al.,]. Basic forms of teaching organization include group discussions, collaboration, and practical training can be improved, and students' deep learning can be promoted and timely developmental evaluations can be conducted to guide the development of innovative thinking. After class, it is necessary to track and evaluate students' learning effectiveness, adjust teaching methods based on students' feedback, and understand their own problems, in order to scientifically optimize and innovate the effectiveness of online flipped classroom teaching. In the process of organizing and implementing flipped classrooms, it is inevitable to use various information software, which also puts higher demands on teachers' information technology level. Various learning software emerge endlessly, and how to filter and extract massive information resources, update teaching content in a timely manner, and master the latest information technology teaching

methods have become the abilities that teachers urgently need to improve in the next step.

Comprehensive update of teaching philosophy

The traditional teaching philosophy is led by teachers teaching and students learning. Teachers are the main body of the classroom, while flipped classrooms make students the main body of the classroom. This shift in position has put forward new requirements for teachers' abilities. The focus of their work has shifted from imparting knowledge to guiding and inspiring students on how to learn independently. Transforming knowledge transmission into knowledge internalization, transforming classroom preset into classroom generation, and shifting reflective teaching to reflective organizational teaching. Only by changing their thinking can teachers shift from conscious thinking to conscious action, actively participate and innovate, achieve self-transformation, and implement flipped classrooms. Flipped classroom teaching is not as simple as teacher-student exchange. The design of teaching activities should not only stimulate students' interest in learning, but also develop their thinking abilities. The ultimate goal of teaching is not how much knowledge students have mastered, but rather to strengthen the cultivation of their comprehensive abilities, and to ensure that there is a mutual connection and interaction between the course learning objectives, class hours, and unit teaching objectives.

Higher requirements have been put forward for classroom control ability.

The pre-class learning of flipped classrooms requires students to complete it themselves, but it does not mean that it is unrelated to the teacher. On the contrary, teachers need to make more detailed and meticulous teaching preparations. Some teachers need to have a deeper understanding of students' situations, course knowledge points, etc. and prepare accordingly by recording relevant audio and video themselves. In the classroom, teachers should guide students to participate in plentiful interactive classroom activities and gradually impart knowledge points. After the course ends, homework should be assigned based on students' performance and feedback, and learning effectiveness should be evaluated to ensure that the teaching content is closely aligned with students' learning needs, thereby improving teaching effectiveness. Teachers not only need to design teaching for offline classrooms, but also need to prepare for online courses, which are more difficult and challenging than traditional teaching methods.

CULTIVATE STUDENTS' LEARNING ABILITY

Cultivate students' ability for self-directed learning

Flipped classroom essentially requires students to study by themselves, and initiative is the practical foundation and important prerequisite for students to engage in classroom reversal. Especially for college students, they already have the ability to actively seek learning resources and solve problems, as well as the ability to independently explore knowledge. Therefore, flipped classrooms can achieve better results. Students should prepare for the course before class. In class, students report on their preview progress firstly, and then group discussions and exchanges are conducted to address the problems that arise during the learning process, so that the classroom revolves around the problems that students encounter during the learning process. The process of flipped classroom is "learn first, teach later". This learning process emphasizes enhancing learners' subjectivity, valuing their active thinking, forming cognitive contradictions or conflicts, ultimately forming reflective thinking qualities, and providing more opportunities for the cultivation of higher-order abilities, ultimately prompting learners to solve problems in real situations. Flipped classroom teaching can only be truly promoted when students have a sense of self-directed learning and the ability to learn independently is sufficient to meet the needs of the flipped classroom.

Promote students' deep learning

Flipped classroom was born with the concept of deep learning from the very beginning. Deep learning "is a type of understanding based learning where learners aim to develop higher-order thinking and solve practical problems, integrate knowledge as content, actively and critically learn new knowledge and ideas, and integrate them into their existing cognitive structures, while also transferring existing knowledge to new contexts"[2]. Flipped classroom emphasizes active self-learning before class, allowing students to enter the classroom with problems. Through communication and interaction in the classroom, as well as answering questions with teachers, students can understand knowledge from all aspects and construct a more comprehensive knowledge system. The process of completing homework after class is a process of deepening knowledge understanding and promoting knowledge transfer. In order to achieve the goal of deep learning, students need to shift from passive learning to active learning, improve their awareness of self-directed

learning, and enhance their ability to explore problems.

Enhance students' team spirit

One of the key components of flipped classroom is group activities. Individual students first prepare lessons before class, each learning group presents their learning achievements to the teacher and other group members, and receives their feedback. This process requires the joint cooperation of the entire team. In this process, group members need to divide their work and collaborate. Firstly, they need to communicate and discuss different issues, form consensus, and then report and present. Group members have different division of labor, some are responsible for PPT presentations, some are responsible for problem organization, and some are responsible for data collection. Everyone needs to be mobilized to complete the task. Flipped classroom learning not only limits learning to individual learning, but fully emphasizes collaborative exploration. Difficult problems that cannot be solved by individual exploration are solved by groups through collaborative exploration, while problems that are still difficult to solve through collaborative exploration are guided by teachers in a timely manner.

EFFECTIVELY ENHANCE LEARNING OUTCOMES

Improve learning efficiency

Flipped classroom expands the learning from limited time in class to unlimited time before, during and after class. In addition, sufficient pre-class preparation enables students to learn with questions in mind and engage in targeted discussions and exchanges during class. This teaching method breaks the limitations of time and space, truly realizing student-centered approach, promoting students' deep learning and exploration of relevant knowledge, fundamentally solving the teaching drawbacks of traditional teaching courses, and achieving comprehensive cultivation of students' comprehensive qualities. The rich multimedia resources and interactive functions of the Internet can provide students with a variety of learning materials, help students understand and deeply explore learning topics, and stimulate their enthusiasm for learning.

Breaking the boundaries of learning

Firstly, flipped classroom breaks down the boundaries between teachers and students, it provides a learning platform for all teachers and students to communicate with each other at any time, especially to fully discuss and exchange ideas on the problems

encountered in learning, changing the traditional teaching mode of unconditional acceptance of knowledge. Secondly, it breaks down the boundaries between inside and outside the classroom. Outside of the classroom, students engage in self-directed learning through online platforms, expanding their extracurricular learning and providing ample guidance for teaching discussions during class, effectively promoting the extension of class teaching to deeper and higher levels. Finally, "flipped classroom breaks the limitations of excellent teaching resources by exchanging high-quality resources from other schools through information technology, thereby helping to achieve high-quality resource sharing between schools with high teaching quality and schools with low teaching quality"[3]. In this way, excellent teaching videos around the world utilize open networks to enter the classroom, allowing all students to access free, reproducible, and easily accessible shared information without any barriers to access or interact. This improves students' chances of accessing high-quality teaching resources and brings them closer to the spatial distance of communication between students and teachers.

Enrich teaching methods

The development of information technology has provided new ideas for the education industry. How to make good use of the Internet and intelligent equipment, with information technology as the support, stimulate students' learning initiative, better realize teacher-student interaction, and promote the further improvement of teaching level is an important direction of classroom teaching reform. With the popularization of smart campuses and the gradual improvement of supporting material foundations and technological conditions, the popularity of flipped classrooms is also increasing. Classrooms are no longer limited to books and lectures, but have expanded into richer forms. Various educational websites and prestigious schools have many online resources for classroom teaching available for free download, editing, or use. The important prerequisite for flipped classroom is to screen the obtained information materials, and the material and technological conditions provided by the school are the important guarantee for the implementation of flipped classroom.

Promote teaching reform and innovation

The traditional teaching method always takes teacher lectures as the main form of teaching organization, and students act as passive listeners, which easily forms a psychological pattern of relying on teacher lectures and limits students' willingness to

learn actively. In this process, the teacher's main focus is on teaching, but also neglects the students' ability to accept, resulting in insignificant learning outcomes. Flipped classroom emphasizes student-centered and ability oriented approaches, guiding students to learn and think independently, and combining theory with practice. In this process, more emphasis is placed on students' digestion, absorption, understanding, and application of knowledge, and sufficient time is reserved for students to engage in interaction, discussion, and communication, effectively improving their practical application abilities. Thus, teaching can shift from focusing on teaching methods and course content to teacher design, organization, and guidance, which helps students form personalized learning and promotes the deep integration of modern information technology and curriculum reform.

Beneficial for evaluating teaching effectiveness

The course evaluation of flipped classroom has more diversified characteristics. Starting from the teaching preparation stage, teachers can evaluate through pre-class preview. In the classroom discussion section, more diverse methods can be used for evaluation, such as group presentations, individual communication, etc., to ensure that every student can actively participate in the evaluation in a highly interactive environment. The completion status of homework after class reflects students' learning effectiveness more intuitively. Students can raise questions about the evaluation content, and teachers must summarize and comment on the evaluation, pay attention to the explanation of difficult and key points, and provide necessary individual guidance. Teaching evaluation is also multidimensional. Teachers evaluate students based on their learning outcomes, and students can also conduct self-evaluation during their participation in teaching.

CONCLUSION

It cannot be denied that although flipped classrooms have revolutionized traditional classrooms, there are also some areas that need

improvement urgently. For example, the high demand for teachers' professional skills, students' learning abilities, and the teaching guarantee conditions in colleges and universities. It is also important to note that flipped classroom is not suitable for all courses. However, this form of teaching organization has brought a new revolution to the traditional lecture class. Through the organic combination of the Internet and classroom activities, it breaks away from the order and mode constraints of knowledge teaching and knowledge internalization. At the same time, with the support of information technology, students' learning initiative and teacher-student interaction can be better realized. It can also stimulate students' learning initiative, promote further improvement of teaching level, and greatly promote the teaching reform process of higher education institutions.

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