The Research of Classroom Teaching Ecosystem Based on Flipped Classroom Mode

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Abstract. In classroom teaching ecosystem, all classroom teaching activities take place under the guidance of goal oriented and based on teaching content. Just as natural ecosystem, only when the classroom teaching ecosystem is in a balanced state, can classroom teaching activities achieve the best teaching effect. The flipped classroom mode based on Internet technology is one of the effective ways to raise teaching quality and has a positive effect on restoring the balance of the teaching ecosystem. The dynamic interaction between students and teachers in this teaching environment promotes the balanced development of students' theory knowledge and practice ability, and achieves the teaching objectives ultimately.

Keywords: Classroom teaching ecosystem, educational ecosystem, flipped classroom mode.

1 Introduction

In the 1930s, the British biologist Stanley applied the knowledge of system theory to the field of ecology and proposed the concept of ecosystem, which refers to the unity of all the plants and animals that live in a particular area together with the complex relationships that exists between them and their environment. These relationships include but are not limited to energy conversion, material circulation, and information transfer etc. In general, ecosystem is divided into natural ecosystem and artificial ecosystem. Later, the theory of ecosystem is applied to many fields of sociology, including applications in the field of education administration, and formed the concept of educational ecosystem. [1][2]

Educational ecosystem is mainly composed of education factors and Corresponding environmental factors. Based on the application scope of the environment factors, there are three levels of educational ecosystem, including social educational ecosystem, school educational ecosystem and classroom educational ecosystem (figure 1), classroom educational ecosystem is also called classroom teaching ecosystem.

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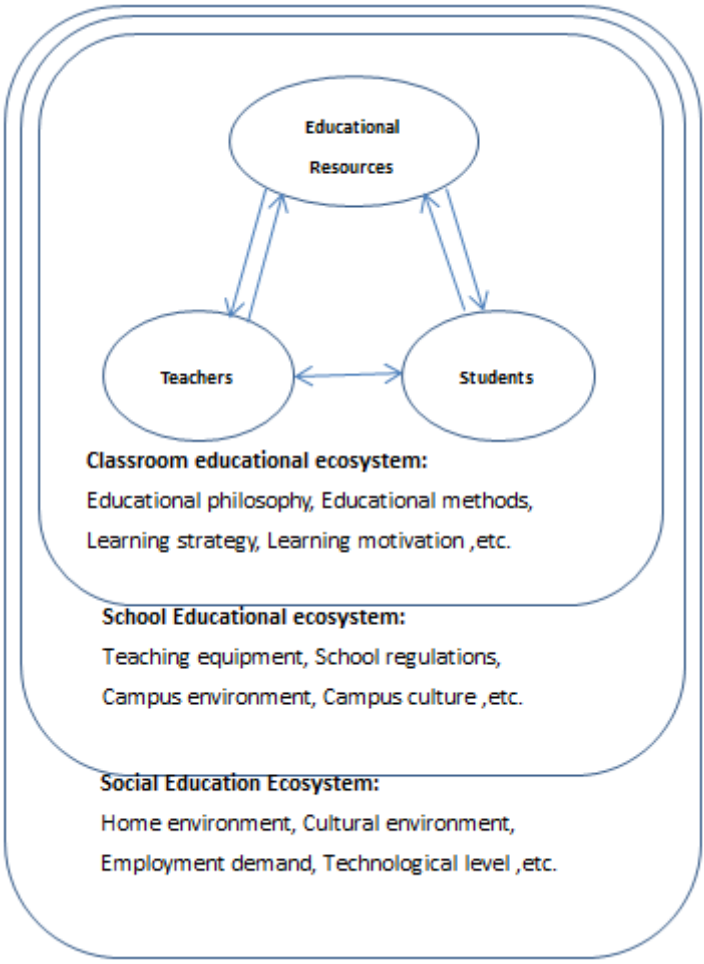

Fig. 1. Structure of Educational Ecosystem

According to the theory of ecosystem, the main factors in classroom teaching activities are people and environment. The people are mainly teachers and students, while the environment which are closely related to classroom teaching include teaching objectives, teaching content, teaching methods, teaching resources, teaching atmosphere etc. The classroom teaching ecosystem is a unified entity within a certain teaching space, where various classroom teaching factors such as teachers, students and corresponding environmental elements interact with each other and generate various forms of connections, to realize the ultimate goal of knowledge transfer. [3]

2 The ecological balance of classroom teaching ecosystem

These interactions and connections between the main elements of the classroom teaching ecosystem, directly affect the realization of knowledge transfer, and these effects may be positive or negative. Just as natural ecosystem, only when the classroom teaching ecosystem is in a balanced state, can classroom teaching activities achieve the best teaching effect.

Ecological balance refers to the relatively stable balance achieved by the mutual constraints of various opposing factors within ecosystem. The ecological balance of classroom teaching ecosystem refers to the relatively balance between its functions and structures. Usually it is the relative adaptation and balance between the main elements of the classroom teaching ecosystem. Study found that positive and constructive elements like high-level teachers, advanced teaching equipment, appropriate teacher-student ratio, friendly teaching atmosphere, are helpful to achieve balance of the classroom teaching ecosystem.

At present, there exists the phenomenon of ecological imbalance in current classroom teaching activities. Firstly, there are lack of effective interactions between students and teachers. In general, teachers play a leading role in traditional classroom teaching models, and students are not provided enough opportunities for personalized learning. Secondly, there are lacks of effective interactions between teachers and abundant extracurricular teaching resources, most teachers prefer to adopt traditional teaching methods. They lack strong motivation to fully utilize extracurricular resources. Thirdly, there is a deviation between classroom teaching and the actual needs of students. For example, teachers' lecture take up too much time and students have no enough time to practice, and the efficiency of knowledge transfer and knowledge update needs improvement.

The underlying causes leading to above phenomenon lies in the fact that with the continuous development of information technology, teaching resources based on the Internet experienced explosive growth. Traditional teaching methods cannot adapt to this development and result in imbalance of the classroom teaching ecosystem. All kinds of elements in the ecosystem establish various relations through information interaction and functional transformation. When all functions of teaching ecosystem can be fulfilled the requirement of teaching, which can be run stably and reliably through adjusting relationships among these elements, the ecosystem reaches balance again. The teaching ecosystem is an organic whole in the contradictory movement, from balance to imbalance and new balance. [4][5][6]

Therefore, we must get rid of the traditional teaching model which mainly based on teachers, actively construct learner-centered teaching environment which is suitable for students' development. It is not only beneficial to achieving the classroom teaching objectives, but also conducive to the cultivation of students comprehensive quality, and reflects the educational philosophy of student development-oriented. In classroom teaching ecosystem, all classroom teaching activities take place under the guidance of goal oriented and based on teaching content. The dynamic interaction between students and teachers in the teaching environment promotes the balanced

development of students' theory knowledge and practice ability, and achieves the teaching objectives ultimately.

Therefore, actively developing new teaching methods that are suitable for the current education condition can solve the above problems effectively. Based on the long-term teaching practice, the author found that the flipped classroom teaching mode based on Internet technology is one of the effective ways to raise teaching quality and has a positive effect on restoring the balance of the teaching ecosystem.

3 The flipped classroom mode

The flipped classroom mode, also known as flipped instruction, was first introduced into the specialized curriculum teaching process by the University of Miami in 2000. This fragmented-network teaching mode gained significant traction in traditional classrooms and resulted in the widespread application of the flipped classroom model utilizing “micro-videos" on a global basis. T the flipped classroom mode can result in greater learning efficiencies through improving knowledge acquisition by means of enhancing two vital components of learning practice: learning motivation and the depth of knowledge processed.

The flipped classroom mode is an effective teaching methods, it transforms the learning process from one of passively receiving knowledge to one of actively inquiring and developing knowledge. Research and application of learned concepts can greatly stimulate students' interest in learning. Not only can students appreciate the value of the content that they have acquired, they also realize a significant increase in their learning motivation. [7][8]

So, the mundane learning process is transformed from a process of rote memorization to one of analysis, evaluation and creation. Continuous and systemic case design and dynamic multimedia presentations effectively stimulate students' interest in research and analysis, improve students’ logical thinking ability and creativity, and achieve the effect of improving the depth of information processing through experiential learning.

With the development of technology, the environment elements play an increasingly important role in classroom teaching. The teaching resources especially the internet recourses are becoming increasingly enriched and improved, and teaching activities are more dependent on them to achieve teaching goals. It is required that other environment elements such as teaching methods or teaching models, should also be improved to adapt to the rapid development of teaching resources. In recent years, more creative teaching methods such as Situation Teaching, Reverse Instruction, Goal Driven, are applied to education area broadly. All these methods could enhance students’ learning initiative and enthusiasm, improve their learning effectiveness significantly, and are helpful to maintain the balance of classroom teaching ecosystem. [9][10][11]

4 Conclusions

With the rapid development of information technology, educational resources and teaching methods are enriched and improved constantly. At present, many universities have reconstructed the teaching ecosystem with the help of information technologies such as artificial intelligence and virtual reality, which has improved teaching quality effectively. For example, learners of computer-related majors can simulate processes of enterprise purchase and production by the use of Internet technology, while teachers of English majors may construct the life scene of foreign countries based on virtual reality technology to help students learn foreign language in high efficiency. The application of these new teaching methods and teaching tools, takes advantage of rich teaching resources, meets the needs of students' personalized learning, enhances students' interest in learning, and contributes to the achievement of teaching goals. [12]

Based on advanced educational philosophy and Oriented to obtain employment, teaching content should be reconstructed. Make full use of modern education technology such as internet technology, virtual reality, artificial intelligence, and explore new teaching means such as flipped classroom and MOOCs. The fundamental purpose is to keep up with the development of educational resources and educational technology through reform of traditional education model, promoting positive interaction among various elements within classroom teaching ecosystem and establishing balanced development of teaching ecosystem. Special emphasis is the establishment and positive function of a good teacher-student relationship. Teachers will accumulate rich teaching experience and develop effective teaching methods gradually through continuous teaching practice. Students can also improve their learning strategies and enhancing their ability to fully use all kinds of educational resources through independent learning under the guidance of teachers. Both of them will get improvement of their fundamental qualities constantly. Only in this way, can the fundamental purpose of education be realized.

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