

# The Application of Micro-Lecture, Mooc and Flipped Classroom in Educational Teaching Reform

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**Abstract:** as times evolves and with the advent of information technology, people's life and work are also changing. The advent of the internet has also changed the teaching method in the field of education. Multimedia has updated teaching concepts and changed the traditional teaching methods, and traditional learning methods of students as well. Micro-lecture, mooc and flipped classroom act as the important teaching methods in today's teaching. By combining these three through online teaching, new teaching concepts and teaching ideas have been presented. The reasonable use of micro-lecture, mooc and flipped classroom in education and teaching reforms help students to learn in a way that reflects actual situation of teaching. That enables the improvement of teaching quality, and helps students to learn better and promotes new type of classrooms.

## 1. Introduction

Micro-lecture, MOOCs and flipped classroom are considered as important teaching models in education and teaching reform. Micro-learning in education requires diversity and pays attention to the combination of online and offline to fill the gap in traditional classrooms. MOOC mainly takes advantage of video and develops the network teaching mode. The combination of MOOC and flipped classrooms requires a good combination of pre-class and in-classroom and interaction between teacher and student. In the classroom, teachers use the combination of micro-lectures, MOOC and flipped classrooms to show the rapid development of new teaching concepts and teaching ideas, teaching methods. As traditional teaching methods can no longer meet the needs of the society, students-centered teaching method is the mainstream teaching method and the combination of these three methods is used in teaching. They can improve the quality of the classroom and help students learn effectively.

## 2. Micro-Lectures Combination of Online and Offline in the Teaching Process

Teachers can make relevant learning plans based on the actual situation of students' learning in the process of teaching. As Micro-lectures are short and intensive, teachers can make more diversified micro-learning ways to help students to learn more effectively on the basis of ensuring their integrity and fun, which also enables students to develop the good habit of pre-class review and post-class restudying. Nowadays, as the Internet is further developed, students can use mobile phones, computers, etc. to watch a variety of micro-lectures at any time, regardless of location, at the same time, courses that are not understood in the classroom can be retaken after the class.

“Micro-lecture” is different from traditional teaching resources such as teaching example, teaching courseware, teaching design, teaching reflection, etc., and is also a new type of teaching resource that build on traditional teaching. For students, they are able to complete pre-class review and review after class, and for teachers, they can better understand the focus of the lesson and tell the important content of the lesson in the classroom by watching the micro-lecture. Students may have unexpected gains by using the micro-lecture review. In micro-lecture teaching, teachers can fully show the learning objectives of the lesson to students and plan the key and difficult points of a lesson. They can use vivid videos to explain to students so that students can fully understand. As

micro-lectures are short but powerful, they can be reviewed at any time and places on the Internet, which is convenient. Students use micro-lecture to review class better, and when they meet any problems, they can leave it to the class to listen carefully and discuss it with the teacher. After the class, students can watch the videos again and review the content that they did not understand in the class. Teachers can make detailed explanations according to the content of micro-lecture watched by students, and give the class to students as much as possible so that students can be the subject of classroom learning. They can divide students into groups and answer their questions, focusing on solving the difficult problems that the students cannot understand<sup>[4]</sup>. That is how teachers can strengthen the students' understanding of the lesson, so as to achieve the optimal learning effect.

As a new teaching method, micro-lecture is more popular among young teachers. Micro-lecture is a more advanced teaching form but still an auxiliary tool for teaching which cannot be used as the main teaching form of teaching and can not replace the traditional form of class, which means classroom teaching is still the main teaching method. Teachers should still focus on the classroom, helping students face to face. Offline teaching should be the main way to help students to learn and solve problems. Teachers can help students to prepare for lesson online and teach students offline. It is the teacher who personally imparts knowledge and explains the key content of the lesson to the students, which makes it easier for the students to understand the content of lesson. It can be seen that the combination of online and offline is the best teaching method, which can achieve unexpected teaching results.

### **3. Application of Mooc in Education and Teaching Reform**

MOOC is a large-scale open online course, which is the product of “Internet + Education” and is translated into “large-scale open online courses”. This is a newly emerged online course that based on open pedagogy of connectivity theory and internet learning.

As most MOOC in China are directly searched on the Internet, which saves time and produces fruitful results. However, the resources can be out of date, leaving the teaching produce unideal results. The traditional teaching method can well present the teacher's thinking and knowledge structure, help students better understand the teaching content of lesson, improving the teaching effect. By combining the information technology and traditional teaching methods, teachers' thinking and knowledge framework is displayed in the form of drawing and video animation, which can make students more active in learning. By applying information technology to the teaching process, we can provide students with better online learning assistance.

#### **3.1 Pilots on Mooc**

On May 8, 2014, driven by China's Ministry of Education, “Love Course Network” established the “Chinese University MOOC” channel to provide MOOC curriculum platforms to universities across the country. On January 8, 2015, “MOOC China” Alliance was established in Shenzhen, jointly formed by the “AoPeng Distance Education Center”, a subsidiary of the Ministry of Education, together with other 38 educational institutions such as Peking University, Beijing University of Aeronautics and Astronautics, Beijing Jiaotong University, Renmin University of China, and Nankai University and so on. As of the end of 2018, the first batch of 490 national boutique courses got certificated by the Ministry of Education, and the number rose up to 801 until mid-2019 as the launch of the second batch. At present, 12,500 MOOC courses are online, more than 200 million college students and social learners have studied MOOC courses, and 65 million college students have obtained MOOC credits.

##### **3.1.1 The Value of Mooc Lies on Its Process Innovation**

In addition to giving worldwide access to first-class educational resources, MOOC is also quite different from the open classes years ago. Online university-issued certifications make learning outcomes more valuable, and supporting services that combine homework and exams contribute to deepen learning and strengthen knowledge. The course will automatically close at the end of the course, building the sense of time urgency urge learners to complete the learning as soon as

possible.

As a new teaching method, MOOC will help students to learn better in the teaching process with more flexibility, which requires teachers to use MOOC to help students to learn better and at the same time to find out the shortcomings and correct them in time. Teachers can develop new teaching modes that are conducive to students' autonomous learning and self-development in the education and teaching reform. By setting teaching goals, evaluation standards, and teaching management forms, they can analyze key points in teaching contents of the teaching reform, improving students' ability of independent learning and innovation.

Besides, the MOOC teachers can keep adjusting and improving the teaching method or contents in the new semester based on the problems, feedback, summaries, and experiences encountered in the previous round of learning process. Some teachers will even redesign the teaching plan in order to adapt to the Internet learning method for global learners and make the new course of new semester a tailored and better learning experience. A new version of the course is re-launched each semester, behind which is ultimately relying on such a set of processes: experiment with learners, feedback collection and improvement, iterative production of course content, and the win-market quality. This is the process for the development and operation of most Internet products, with a fashionable name of “lean entrepreneurship”, or “Internet thinking”, born to meet the rapid changing needs of the market. The considerable innovation in the process of education industry brought by MOOC is bound to have a profound impact as it produces a simple, easy-to-improve, and cost efficiency approach focused on the course content, teaching plan and design, finally iterating to emerge more popular courses for learners<sup>[3]</sup>.

### **3.1.2 Technology is the Imagination of Education**

The key technology behind MOOC's process innovation is data mining, which is composed by a comprehensive technology system including statistics, online analysis, search, machine learning, expert system, pattern recognition, knowledge map and other methods. It enables MOOC to improve the teaching plan and content according to the performance and feedback of learners, to achieve agile development focused on faster iteration formula. Such a method emphasizes adaptability rather than foresight, with simplicity, change, self-organization, early and continuous delivery as the principle or normal in the development process.

Big data has the amplifying effect through the large-base course subscribers as well as statistical online analysis technology. For example, if only two of 50 students make a mistake on question A, which might be considered not worthy of concern by the teacher. Whereas, MOOC can contain 100,000 participants in learning that the ratio equals to 4000 wrong students then, hence the teacher has to provide a better explanation of this “significant problem”<sup>[2]</sup>.

Technology can transform not only the process, but also the expectations for education. Correspondingly, MOOC emphasis not only on the popularization and efficiency of education, the essence of main-stream educational mode, but also individuals development. The Winnett card system at the beginning of this century and the refined teaching methods developed in the following decades all devote to pay more attention to individuals, however, all of these experiments ended with no avail as the high costs of large-scale personalization make it unfeasible. Meanwhile, other technologies embedded in MOOC such as machine learning, expert system, knowledge map and others that beyond the individual ability of teachers are fully displaying their skills<sup>[6]</sup>. According to each student's existing learning trajectory, including the results of stage tests, MOOC propel suggestions based on students' good direction, error category, and even the time required for different types of knowledge to complete. This has become the basis of predicting the learning difficulties and knowledge investigation points of the students in the next stage, so as to achieve personalized teaching and make the concept of proficient teaching method come true again and fully.

Technology will be the dominant driving force of educational innovation no matter it is the flipped classroom advocated by Khan college, lifelong education advocated by MOOC, adaptive learning represented by Knewton, or the rising popularity of steam concept. Learners are capable of

obtaining better academic performance and active participation, stimulating difficulties-overcoming confidence, and thus generating learning motivation through personalized learning programs [5]. Once the positive feedback mechanism is formed, life will change dramatically as education on creativity actually begins with independent, self-controlled learning with more communication, sharing and courage to try.

### **3.1.3 Lifelong Learning Depends on Community**

Online community, the product of the age of Internet, is more powerful than the community in reality to create an environment for lifelong learning as the disappearance of space barriers. People in all regions can communicate with each other through the selection of interest direction, hence there are more similarities with their values that influence on each other's behaviors on a deeper level. Besides, Remarkable effects on learning process and results will emerge when all walks of learners gathered in the MOOC community for the similar objectives with online discussions, ideas exchanges, identification and inspirations of each other. In addition, during MOOC's teaching process, the value of online community can be seen everywhere. For instance, online homework evaluation allows learners to participate in the learning process of others, and they also experience the feeling of teaching. This initiative also helped teachers successfully solve the heavy pressure of serving tens of thousands of students at the same time. For another example, learners in MOOC college return to the community to grade and comment on the course after completing the course, so as to help other community members make more reliable judgment in the course selection, and realize the recommendation and information sharing of high-quality resources through the power of the community.

## **4. The Application of Flipped Classroom in Education and Teaching Reform**

Flipped classroom refers to readjusting the class time and transferring the decision-making power of learning from teachers to students. Against that backdrop, students will be able to focus more on project-based learning, and work together to solve the challenges of localization or globalization and other problems in order to gain a deeper understanding. The teaching mode that combines flipping classes with MOOC can be divided into pre-class previews and teacher-student interaction in the classroom.

### **4.1 Preview**

The flipped classroom is a learning behavior that combines pre-class preview with in-class learning. Teachers can take advantages of micro-lecture and MOOC to make relevant pre-learning videos for students to help students preview the lesson. Based on the actual situation of student learning, the teacher chooses a suitable lesson for students to learn. Teachers may also choose some foreign MOOC resources, requiring students to have certain language skills. When micro-classes can show its prominent advantages, it is more concise and highlighted. However, in the terms of course selection, different types and contents may be presented on the same topic, which makes it difficult to choose. The effective combination of MOOC and micro-lecture can be used to help students better carry out pre-class previews, using micro-lecture to show students the key content of lesson, and MOOC to fill in the gap in micro-lecture.

### **4.2 The Application of Flipped Classroom**

Flipped classroom ingeniously changes the structure of school education, endows teachers and students with new connotation in their roles, teaching forms, classroom contents, technology application and evaluation mode of teaching elements, realizing profound changes in the presentation of teaching content, teaching mode of teachers, learning mode of students and interaction mode of teachers and students. Instead of occupied classroom time by teachers to teach information, students should be capable to complete their own learning in the form of watching lectures videos, listening to podcast and reading e-books after class. Simultaneously, students are able to have online discussions with teachers and other classmates, and consult the required

materials at any time. Students plan their own learning content in terms of their pace and style in extracurricular activities, while teachers spare more time adjusting their teaching and collaboration methods to meet students' satisfaction and facilitate their personalized learning, with the goal to make students get more inquiry and active learning experience through practice.

Teachers should take students as the center and urge students to do pre-class review. In-class time, they should give full play to students and what teachers can do is to guide the students and teach the key points of the lesson, encourage students to raise questions about what they have learned. Teachers can group students to let students discuss independently, solve problems, making them to make full use of network resources for learning. Teachers should make teacher-student interaction in the classroom possible and discover the advantages and disadvantages on time so that they can optimize the content of the next lesson in time<sup>[1]</sup>. All that prove that the use of flipped classrooms is of great significance to education and teaching reform.

## 5. Conclusion

Micro-lectures, MOOC, and flipped classrooms have a very important impact on the field of education and students' learning as well. As times evolves, it has gradually become a new type of modern teaching, which can activate students in the classroom. However, as traditional teaching methods still have unique advantages, we should take the essence from them and combine it with micro-learning, MOOC, and flipped classes to achieve the best learning effect. Schools should choose teaching methods accordingly both for their school's development and for students' learning. The combination of online and offline learning methods is helpful to fill the gap, thus improving teaching quality, and helping students to learn better.

## References

- [1] Ding Jiabin. (2017). Application of Microlecture, MOOC and Flipped Classrooms in Education and Teaching Reform. *Information Recording Materials*, Vol.18, No.12, pp.166-168.
- [2] Huang Tongnan, Yi Mengling. (2019). A Preliminary Study on the Application of "Microlecture, MOOC, Fliped Class" in Teaching Reform. *Chinese and Foreign Exchange*, Vol.26, No.23, pp.35-43.
- [3] Chen Zibing. (2018). The Characteristics and Enlightenment of Flipped Class, MOOC, and Microlecture. *Yinshan Academic Journal (Social Science Edition)*, Vol.31, No.6, pp.101-104.
- [4] Wang Jing, Fu Yunpeng, Shi Xiangdong, et.al. (2018). Analysis on the Application of Microlecture, MOOC and Flipped Lessons in Higher Education Teaching . *Exploration of Decision*, No.24, p.63.
- [5] Xia Dongsheng, Sun Xiannian, Zhu Gongzhi. (2019). Exploration of the Characteristics and Interrelationships of Microlecture, MOOC and Flipped Classes [J]. *Heilongjiang Education (Higher Education Research and Evaluation Edition)*, No.4, pp.47-49 .
- [6] Zhang Li. (2019). New Opportunities for University Education Reform: Microlecture, MOOC and Flipped Classes. *Yangtze River Series*, No.9, pp.119-121.