Application and Thinking about Micro-Lesson -A Case Study on the Application in Staff Training

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Abstract—**The concepts and innate character of micro-lesson are analyzed, and the application in teaching practice is discussed,on the basis of which four application modes are concluded by combining the current application of micro-lesson in teaching, which are flipped class, differentiated teaching , after-class tutoring and developing autonomous learning. The paper gives a systematic exploration of the concept and instructional application of micro-lesson from the aspect of theory and practice. In the example of micro-lesson's application in staff training, the effect of helping teachers to carry out differentiated teaching and developing learner's autonomous learning is discussed.**

Index Terms—**micro-lesson, application, autonomous learning, differentiated instruction**

I. INTRODUCTION

The micro lesson has its profound historical background and great realistic demand. In current era, learning methods continue to emerge, like flipped learning, blended learning, mobile learning, fragmentation learning, ubiquitous learning, and so on. Learners need a new type of digital learning resources to support personalized learning, help they take time for the overload information and the challenge of fragmentation knowledge and self renewal. It is urgently needed a kind of teaching method by hard-working teachers, to support their information teaching, network training and professional development ,from the resource construction mode of the long boring classroom record of teaching video and conventional multimedia course ware to the more flexible and efficient mode, which can be repeatedly applied and has small volume, small scale as well as refined content. Micro-lesson is the development and extension of micro era video technology. It can meet the urgent needs of learners, teachers and resource builders in the network age because of its civilians, dapper, network streaming media and according with the network era learners' attention model.

II. THE CONCEPT AND INNATE CHARACTER OF MICRO-LESSON

For the concept of micro class, scholars at home and abroad have different understanding, which mainly can be summarized into three categories: (1) the concept of "teaching resources", such as online teaching video, digital learning resource package; (2) the concept of "class", highlighting the micro lesson is a short "teaching activities"; (3) corresponding to the concept of "course", which has curriculum plan (micro teaching plan), curriculum objectives, curriculum content (subject knowledge point), there are curriculum resources (micro class, micro practice, micro course ware).
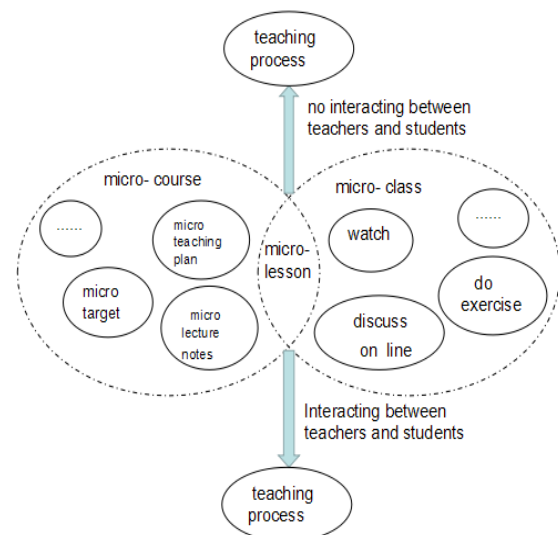

Figure 1. The relationship of micro lesson, micro class and micro course

Ref. [1], [2] The first attention to micro-class is a series of micro video launched by the Khan Academy. These videos are used for students' autonomous learning, approved and praised by the students and parents, and so achieve the purpose of video transformation and education. The micro lesson is accepted by people as a teaching resource. With the increasing application of micro-lesson, people began to understand it as a kind of "class". Compared with the concept of the course, the concept of the class is relatively clear. It is generally

believed that the class is a unit of time limited, organized teaching process, its role is to achieve a complete but partial teaching purpose. It belongs to the category of "teaching theory", as we often say "class" refers to a kind of organized classroom "teaching activities". While "course" is the teaching process. One of the essence of the teaching process is the communication process between teachers and students in the classroom. It is a teacher's teaching and student's study, and its essence is communication. The relationship is showed in Fig. 1.

According to a certain subject knowledge point or teaching link, micro-class can choose the teaching focus, difficulties, doubts, error prone points, confusing points and carefully design teaching ,so it has the important characteristics of the design, scene, interesting, visualization, and digital learning resources package, etc. Its essence is a new personalized learning methods and network teaching and research methods, which support flip learning, hybrid learning, mobile learning, fragmentation of learning and other variety new types of learning in the internet era., and meet the needs of personalized learning and autonomous learning.

III.   AN OVERRIEW OF THE APPLICATION OF MICRO-LESSON

At present, there are the mainly four kinds of application mode of micro-lesson, including the support of the flipped class, differential teaching in class, tutoring after class and developing autonomous learning.

A.   The Application Mode of Flipped Class

According to the needs of teaching, micro class can be arranged before the class, and can also be arranged in the class. The important characteristic of this kind of application mode is "learning before teaching". After the students learn the micro lesson, the appropriate preset tasks are arranged to obtain the mastery degree of the content in micro-lesson and to provide the feedback information for the teacher's follow-up teaching decision. The mode of flipped class is showed in Fig. 2.
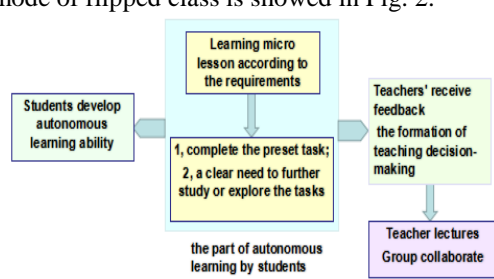

Figure 2. The flipped class mode

B.   The Application Mode of Differentiated Teaching in Class

In the course of teaching, the students will often be required to complete the corresponding classroom tasks (such as the mathematics of the variable practice) after the completion of a module or knowledge point, which is used by teachers to test the effectiveness of students' learning or to expand the teaching content. However, due to the differences of students' learning degree part of the

students can not successfully complete the task in the classroom. Such students can learn from micro-lesson the teachers has prepared well in advance. Such micro-lessons help students complete the task through reviewing relevant knowledge or concepts in time. The application mode of differentiated teaching in class is showed in Fig. 3.
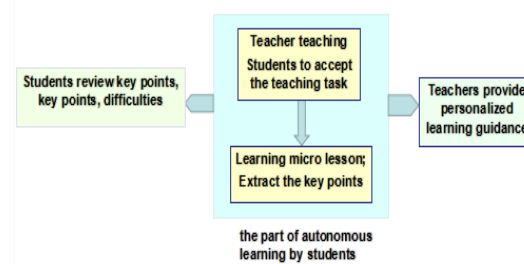

Figure 3. The application mode of differentiated teaching in class

C.   The Application Mode of Extracurricular Counseling

In the after-school practice, Students often encounter some problems that will not be done. To solve these problems, teachers record the solving strategies of the problems into micro- class for the students who have difficulty in learning independently. The application mode of extracurricular counseling is showed in Fig. 4.
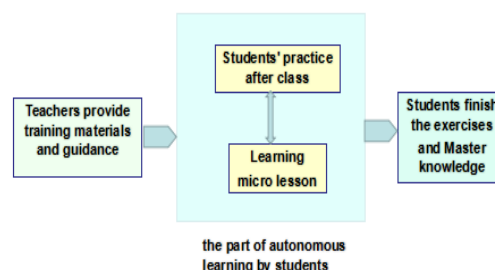

Figure 4. The application mode of extracurricular counseling

D.   The Application Mode of Supporting Learners to Develop Autonomous Learning

In addition to teaching task, learners will take the initiative to learn some of the interesting knowledge .Micro class can support learners to develop autonomous learning, and now micro class is used as teaching resources. The application mode of supporting learners to develop autonomous learning is showed in Fig. 5.
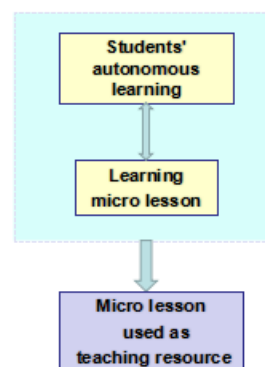

Figure 5. The application mode of supporting learners to develop autonomous learning

IV. ANALYSIS OF THE APPLICATION OF MICRO-LESSON IN THE STAFF TRAINING

A. Current Situation of Staff Training

1) Significant difference of learning demand for basic level staff

Due to various reasons, the staff who take part in training belong to different types of work，Some are engaged in management work, and some in technical work, which lead to their different learning needs. There are obvious talent levels, individual differences in categories. Training needs to be covered in the face will need to be both comprehensive and specific. This is a certain degree of difficulty.

2) Strong self learning tendency

As the purpose of learning is clear and specific, they have clear requirements for the learning content. If the goal of the course is different from the objects in their work, they tend to lack the interest of learning and the lack of motivation to learn. But training as a way to improve the level of theory is organized as a way to improve the level of theory in accordance with the principles of the system, with a more clear logic and integrity. How to coordinate is important.

3) Too short training time

The time which can be used staff training is very limited. The good methods used in training is taught maybe more valuable.

B. The Applicability of Micro Class in Staff Training

Ref. [3], [4] The micro-class is by using a micro video as the core, to a knowledge point (such as the focus, difficulties, doubts, test etc.) or teaching (such as learning activities, theme, experiment, tasks) designed a development model, in the line of network video courses to support a variety of learning styles micro class teaching. With a short time, teaching contents, resources of small capacity, resources situation, the specific content of the distinctive, practical, interesting, simplified in one, spread in many ways, timely feedback, content targeted. Micro courses to meet the personalized learning needs of the students, supplementary learning in accordance with their lack of network to enable students to learn spontaneously whenever and wherever possible, explore. With the development of network, information and the improvement of science and technology, micro class is revolutionizing the traditional way of learning, aiming at the specific issues are more more timeliness Processing, the network into a learning platform.

1) Micro class helps to meet the individual learning needs of staff

Teaching a situation of individual differences or learning habits cause, can be found in all kinds of teaching. The emergence of digital network teaching platform can solve this imbalance of the two range to a certain extent. Teachers upload the classroom video and related learning resources to the network teaching service platform, and students download the teaching resources through the terminal equipment or learn on line. Problems that students encounter in the learning process can be answered through the help of teachers and classmates by tools or forums that are available on the platform. Teachers record the learning situation of students by data in the platform and design and organize the following activities of classroom teaching.

2) Micro lesson can make learning more flexible, learning more effective

With the development of information technology and the promotion of the construction of micro lesson resources, the network can provide massive learning resources, effectively solve the problem of the number of learning resources; In view of a specific problem, a large number of micro lessons can provide learners with all the knowledge points, and effectively solve the problem of the quality of learning resources. From the size of the point of view, the micro class capacity is usually only a few dozen signs on the support network streaming media playback; various forms of communication are suitable for students to be flexibly autonomous learning in mobile terminal. In recent years, the rapid development of mobile terminal allows learners to have the opportunity to watch the required learning resources at any time and at any time, and can quickly and quickly save, so as to follow the study.

3) Micro class can make learning from time and space constraints

Ref. [5] One of the important reasons for the wide spread and popularity of micro lessons is that it is not restricted by time and space. Especially in the condition of the network information especially developed area, a learner can study at any time and any space in his or her own convenience. The micro class changes classroom teaching to a "mobile classroom" teaching, and students can choose to learn according to their own needs; they can also choose any suitable time for learning. This is the impact of micro-lesson on classroom based accounting in time and space aspects. And micro class time is short, but the teaching content is complete, most of the practice of micro class control in about 5-10 minutes, which is helpful for learners to concentrate their attention, and to make use of the knowledge as far as possible in the fragmented and limited time. So it is especially suitable for staff training .Short and concise micro lessons can allow the staff to make full use of their fragmented time to learn knowledge.

C. The Application Mode of Micro-Class in Staff Training

1) Help teacher's teaching

In the face of staff with individual differences such as different job and long life span, sometimes teachers maybe care for this and lose that, at this time the teachers can use the prepared micro-lesson resources to explain, which can improve the quality of staffs' learning and the quality of teaching.

2) Guide students to carry out autonomous learning

The staff has rich practical experience but lack of systematic and overall concepts. Teachers do not know their knowledge of reserves, so the workers need to learn independently under the guidance of teachers. Teachers

can not meet the needs of each student's difference, so teachers carry out differentiated instruction by using the micro lesson may be the better solution.

V. Epilogue

With the increase of the application of the micro lesson and the further research, the teaching application mode of micro teaching is not limited to the four kinds of the flipped class, differential teaching in class, tutoring after class and developing autonomous learning. The micro lesson is used more and more in all kinds of teaching practice. Generally speaking, the micro lesson is mainly used to help the subject to develop autonomous learning ability, and help teachers to use information technology and network technology to achieve better differentiated teaching. Weather the Micro-class concept can guide the learner to form the ability of independent learning needs the test of time; whether micro class can be applied in other areas of education also need to be further explored.

Acknowledgment

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Lihuan Liu was born on July 20th, 1980. She has obtained PhD in Engineering in 2009 from Hohai University. In September 2014, she became a lecturer in department of hydraulic engineering of Hunan Polytechnic of Water Resources and Electric Power. In 2015, she obtained the National two-level Psychological Consultant Certificate in China.
In order to teach better, she continues to study better teaching methods. In October 2015, she trained a number of grass-roots water conservancy workers. During the training process, she found that the micro-lesson can significantly improve the learning interest and learning efficiency of these employees. At the same time, she was receiving the training of college teachers' qualifications, and had the opportunity to exchange ideas about the application of micro-lesson with experts. After a period of time to collect information and thinking about the application of micro-lessons, the paper was achieved in July 2016.