A Study on Pedagogical Innovation in University Education Based on Microlecture

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Abstract

Under the new context, pedagogical reform in university talent training is imperative. Enlightening, inquiry, discussion-type, participatory and case-type teaching methods are extensively carried out. Modern teaching models such as MOOC, microlecture and flipped classroom are used, and teaching means and methods are constantly changed. In this way, students are motivated to be active. In terms of total credits, it’s lowered to some extent for different majors. Take five majors of the School of Economics and Management for example. In the new talent training plan, the total credits must be around 150. The original total credits of the accounting major, financial management major, tourism management major, marketing major and international economy & trade major were respectively 197.5, 202, 210, 204 and 190 and decreased by 31.67%, 34.67%, 40%, 36% and 26.67%. The proposed method can enhance the overall performance of the education result.

Keywords: Pedagogical Innovation, University Education, Microlecture

1. INTRODUCTION

The pedagogical reform shall be oriented towards characteristic development, guided by collaborative innovation, center on students, further innovate in training models and reform class teaching models. It’s the new requirement proposed for higher education at the 18th National Congress of CPC. Besides, it’s in line with spirits of Opinions of the General Office of the State Council for the Implementation of Deepening Education Reform on Innovation and Entrepreneurship in Universities and Colleges. Meanwhile, it conforms to principles of higher education and national standards for professional teaching quality. In the talent training process, higher education institutions shall refer to different requirements of different majors for talent training goals, knowledge, abilities and qualities. Based on national standards for professional teaching quality and professional certification (assessment) standards, it shall regard knowledge as the base, ability as the essence and quality as the core. Furthermore, it shall focus on systematic design in terms of teaching methods, teaching means and teaching environment, thus building a training model with distinct characteristics.

Under the new context, pedagogical reform in university talent training is imperative. Enlightening, inquiry, discussion-type, participatory and case-type teaching methods are extensively carried out. Modern teaching models such as MOOC, microlecture and flipped classroom are used, and teaching means and methods are constantly changed. In this way,
students are motivated to be active, have initiative and be creative, and participate in learning, thus truly shifting “teaching-oriented” to “learning-oriented”. The philosophy of “student-oriented in teaching and teacher-first in moral example” shall be abided by to scientifically and reasonably arrange teaching contents, avoid repeated contents, organically link and integrate. The most important thing is to impart methods and guide independent learning. Design and management for students’ extracurricular independent learning shall be strengthened so as to direct students to build scientific thinking, grasp scientific methods, and enhance professional abilities. Furthermore, it shall provide necessary ideological and methodological guarantee for life-long learning, employment and entrepreneurship.

Based on the case of Hubei University for Nationalities, this paper studies importance and imperativeness of pedagogical innovation in university talent training. Hubei University for Nationalities improved its 2017 undergraduate talent training plan in order to carry out and implement Opinions of the Ministry of Education on Instructing Transformation of Some Local Colleges and Universities to Application, national standards for professional teaching quality and professional certification (assessment) standards. While focusing on professional foundation, it controls class hours and credits, properly reduces class hours and increases practical opportunities, strengthens extracurricular instructions, promotes joint linkage inside and outside the class, and thus provides time and space for students to study and think on their own. In terms of total credits, it’s lowered to some extent for different majors. Take five majors of the School of Economics and Management for example. In the new talent training plan, the total credits must be around 150. The original total credits of the accounting major, financial management major, tourism management major, marketing major and international economy & trade major were respectively 197.5, 202, 210, 204 and 190 and decreased by 31.67%, 34.67%, 40%, 36% and 26.67%. The average reduction of five majors in total credit reached 33.8%. At the same time, the proportion of practical teaching must be increased and links such as experiment, practical training and internship must be strengthened. It’s the requirement of the university’s transformation and Opinions of the General Office of the State Council for the Implementation of Deepening Education Reform on Innovation and Entrepreneurship in Universities and Colleges. The accumulated credits of practical teaching in class and practical teaching alone must be no less than 25% of the total credits. Hence, in the new talent training plan, the ratio of theoretical teaching in class hours and credits will be dramatically compressed. Traditional extensive and cramming teaching can no longer meet with teaching requirements of the new. Neither can it accomplish teaching tasks nor reach goals of talent training plan. This paper takes microlecture for example to study modern pedagogical innovation.

2. Overview of Microlecture and Its Teaching Model

(I) Connotations of Microlecture

Microlecture is a kind of teaching method that is based on “cloud computing”, regards teaching activities in unit class hour as its research object, and three modules and “guiding and learning integration” as its basic model[1]. The essence of microlecture is to realize in-depth integration of information technology and courses through teaching practical activities in each
class. It’s aimed to promote interaction between teachers and students, and pay attention to students’ innovative thinking ability and practical ability. Besides, it emphasizes teachers’ shift to “directors” from “actors” and profoundly facilitates course reform. Zhao Leilei, et al. (2015) maintained that microlecture was the outcome of “chinization” of flipped classroom, and studied the essence of microlecture from such three aspects as basic characteristics, teaching system and advantages[2]. Wang Chengxiu (2016) applied to microlecture to the flipped classroom of College English, compared traditional teaching and microlecture in practice, and concluded that microlecture could be gradually promoted in English teaching for most of majors at different levels[3]. Many scholars studied microlecture from the perspective of students’ learning, the perspective of knowledge system or the perspective of teachers’ research over microlecture. Although scholars focused on different aspects, they all defined microlecture through time, contents and form. It’s believed that microlecture was characterized by short time, carrier of video and concentrated knowledge point or problem. In university education, required course in discipline education is an important part of the curriculum system. These courses are strongly professional, fundamental and theoretical with high credits (accounting for 21.67% in total credits), etc. The performance in major courses is directly related with following study of professional courses and personality training courses. With proposal of the new talent training plan, the traditional teaching method can no longer meet with new requirements. Hence, pedagogical innovation must be conducted.

Microlecture is composed of three modules: independent learning task list, learning resources (including microlecture) and class teaching method innovation (See Fig. 1). Independent learning task list is a form-like solution designed by teachers to guide students’ independent learning. Learning resources are resources developed by teachers to help student complete tasks in the independent learning list. Microlecture is the integration of independent learning task list, learning resources and class teaching method innovation. The design, development, implementation and evaluation of microlecture are put in place through three modules. Hence, microlecture is a kind of new-type resource that brings together learning contents and learning method of flipped classroom.

![Figure 1. Module Composition of Microlecture.](image-url)
(II) Teaching Model of Microlecture

The teaching model of microlecture is composed of three parts (see Fig. 2). First layer: subject behaviors situated in the “foreground” of learning activities when unit class hour teaching activities are designed from the perspective of students. The left side of the dotted line represents independent learning before class. The right side of the dotted line represents independent course learning, collaborative learning and inquiry learning. Second layer: the basic framework of microlecture comprising of before-class independent learning task list, learning resources and class teaching method innovation. Two modules on the left side of the dotted line, i.e., independent learning task list and learning resources happen at the before-class learning stage. On the right side of the dotted line is class teaching method innovation. Third layer: subject behaviors situated in the “background” of learning activities when unit class hour teaching activities are designed from the perspective of teachers. The left side of the dotted line indicates that before pre-learning, teachers prepare the “task list” used to guide students’ before-class independent learning and learning resources that help with students’ independent learning (including “microlecture”); on the right side of the dotted line it shows teachers’ design of basic teaching innovation plan before class learning as well as other behaviors of organization, guidance and evaluation in class, etc.\[4\]

Through organic combination of three modules including independent learning task list, learning resources and class teaching method innovation, the traditional “teaching” and “learning” behavior subjects of teachers and students are shifted to the “guiding” and “learning” behavior subjects. Meanwhile, teachers’ behaviors usually happen before students’ behaviors (except guidance and evaluation behaviors in class learning) and demonstrate the nature of “guiding and learning integration”. Hence, it transcends the last fortress of the “learning before teaching” concept that “centers on teachers”. It tends to be consistent with the world’s teaching reform and development trends.

In order to materialize “guiding and learning integration” in three modules, microlecture model puts forward concrete requirements respectively for teachers and students. First, to realize guiding and learning integration in the task list module. In the independent learning task list, the task list is divided into three parts of manual, learning tasks and confusion & suggestions. The learning manual and tasks are designed by teachers in advance. Confusion and suggestions are filled in by students according to their actual conditions. Teachers use task-drive and question-guide methods to help students get a clear understanding of teaching goals, learning channels and methods. Besides, teachers refer to learning resources to enhance efficiency of independent learning. Students learn on their own according to learning objectives, key and difficult points and learning methods preset by teachers. When coming across problems, students can resort to learning tasks given in the task list. Through independent learning of single modules pursuant to the task list, students prepare for participating in class activities. Students turn to study actively rather than receiving passively while teachers transform to director-teaching in modern sense from traditional actor-teaching. Before-class learning can greatly shorten the learning time in class and increase learning efficiency.\[5\] Second, to realize guiding and learning integration in the module of learning resources. Microlecture refers to learning resources that help students to complete tasks
included in the independent learning task list in the form of teaching video. Teachers develop microlectures with many years’ teaching experience so as to provide a support for students’ independent learning and let students understand or discover knowledge in a more effective way. Teachers are more like an instructor and helper from design of the task list to development of microlectures. It further shows that teachers take another solid step in transforming from “actors” to “directors”. Students can play microlectures repeatedly to observe difficult and confusing problems they come across in independent learning until they understand it. Third, to realize guiding and learning integration in the module of class teaching method innovation. Teachers provide a task list with accurate orientation and strong operability. Guided by microlectures or other learning resources, students can basically grasp basic knowledge through independent learning. As a result, teachers don’t have to repeat in class. Instead, they should concentrate on internalization and expansion in teaching method innovation. It’s mainly demonstrated in test, assignment, collaboration and display, etc. Students will take part in tests provided by teachers which they can pass as they have prepared in before-class learning activity. Hence, they can gain a sense of achievement. They will complete advanced assignments, participate in science experiments and deepen their acquisition of self-learned contents; they will study in group for difficult and key questions, share their wisdom and expand abilities; then they will showcase their achievements in independent learning, collaborative learning and inquiry learning, and participate in questioning and explanation.

![Diagram](image-url)

**Figure 2. The Teaching Model of Three Modules and Guiding and Teaching Integration in Microlecture**

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The “guiding and teaching integration” that runs through the three modules is the most fundamental nature of microlecture. It makes microlecture surpasses the traditional “learning before teaching” concept that “centers on teachers”. Instead, they directly step towards the promising and interesting course on which they play the role of wise men that “enlightens students’ intellect”.

3. Pedagogical Reform Initiatives under Microlecture

The principle of “teacher being the leader and students being the subject” shall be followed to carry out class teaching model which is in line with discipline characteristics and learning rules. Furthermore, students’ question awareness shall be trained and strengthened to expand their autonomy and participation in learning. Meanwhile, traditional teaching methods shall be reformed and new-type teaching methods shall be designed to meet with requirements of the new talent training plan. Hence, it’s important to give full scope to advantages of microlecture, put “three modules” in theoretical class teaching and truly realize “guiding and teaching integration”.

(I) Design Independent Learning Task List to Realize Guiding and Teaching Integration

Independent learning task list is a solution which is presented by form and designed by teachers in order to guide students’ independent learning. It’s the support and carrier for students to efficiently study on their own. In terms of structure, the list includes such three parts as learning manual, learning task, confusion and suggestions. Learning manual includes content names (version of textbook + course title + applicable grade and majors + content name), objectives, suggestions on learning methods and preview of class learning form. The quality of the task list design directly influences students’ learning depth, width and possibility of reaching learning objectives. It may affect the development of learning resources such as teaching videos and even strategic choices of class teaching method innovation.

Take the prescribed period for litigation in “Basic Civil Legal System” of Economic Law for example. First of all, the learning manual shall be designed. The content name shall be “textbooks for 2015 certified public accountant + economic law + 2015 accounting major + prescribed period for litigation”; objectives are as follows: understand basic theories of prescribed period for litigation, grasp categories, calculation, termination, suspension and extension of prescribed period for litigation; learning methods: combination of case teaching method and theoretical teaching method; preview of class learning forms: after student study basic theories of prescribed period for litigation on their own, teachers can use case teaching method in class to apply calculation, termination, suspension and extension of prescribed period for litigation to actual cases. In this way, it can help students master the key point comprehensively. Second, learning tasks shall be designed. Students will command how to calculate the prescribed period for litigation by watching videos, reading textbooks or drawing upon review materials for certified public accountant exam. Besides, they will learn under what circumstances the prescribed period for litigation will be terminated, suspended and extended as well as how to terminate, suspend and extend, and protect rights of the involved party. Last but not least, confusion and suggestions. After students study on their own, they can timely provide feedback on confusing knowledge points or come up with some
constructive suggestions. Teachers can provide one-on-one teaching in class in a pertinent way, which can greatly save teaching time in class and enhance learning efficiency.

(II) Apply Microlecture Teaching Design to Realize Guiding and Teaching Integration

Microlecture is a kind of situational new-type online course resources that support multiple learning methods [6]. It’s designed and developed based on knowledge points (such as key points, difficult points or confusing points, etc.) or teaching steps (such as learning activities, themes, experiments and tasks) of a certain discipline with micro-teaching videos as the main carriers. Teachers develop “microlectures” in order to provide support for students’ independent learning and make them understand or discover knowledge more effectively. From design of the “task list” to development of “microlectures”, teachers start playing their roles of instructors and helpers for students’ independent learning. It shows that teachers take another solid step in transforming from “actors” to “directors”. Yet, true development of “microlectures” in practical teaching must combine different disciplines, different majors and different students to work out different types of microlecture models. It’s mainly manifested in the following aspects [7].

The first one is come-to-the-point microlecture model. It means that teachers shall directly illustrate the topic of the microlecture at the very beginning, such as “suspension of the prescribed period for litigation”. Such model directly names the theme and clarifies what to be explained and learning objectives. It can attract sufficient attention of students so that students can concentrate on the knowledge thread of the class. Such model is applicable to students who are active in learning or positive learning objects with explicit goals.

The second one is situational microlecture model. According to Confucius, “Do not guide him unless he has spared no effort to figure it out; do not enlighten him unless he just needs to express what he understands. If he cannot draw inferences, please stop making examples for him.” Confucius particularly stressed the importance of students’ entry into the learning situation while approving the role of enlightenment. In situational microlectures, situational setting needs to be close to life in order to attract learners, resonate with them and increase attention; knowledge shall be explained layer by layer to guide learners to meditate; selection of teaching media shall be in line with expressive form, graphic images and easiness to understand; when questions are answered, continuity of situations shall be noted. In the meantime, setting of situational microlectures must pay attention to users. For instance, life-related situation microlectures are mainly applied to cognition, ideological, political and attainment courses; video microlectures are mainly aimed for accounting, psychological health and legal basis courses; music microlectures shall be mainly applicable to college Chinese and aesthetic education, etc.

The third one is inquiry model. Inquiry teaching is a model that focuses on students. It principally underlines the subject position of students, and encourages students to study in an independent and cooperative way with scientific thinking. However, in practical teaching, teachers are the main explainers. Hence, role-playing is emphasized. Teachers shall be not only able to let students ask questions but also capable of putting forward questions, exploring and solving problems from the perspective of students. Inquiry microlecture mainly covers such four aspects of proposing questions, producing hypotheses, verifying hypotheses and
making conclusions. It’s mainly designed for engineering courses which attach equal importance to theory and practice, such as data mechanism, maintenance of machine data and computer maintenance, etc.

The fourth one is anchored microlecture model. Anchored teaching is a kind of method that motivates students to introspect and improve transfer ability and ability of solving complicated problems with situational techniques. These techniques are applied under diversified real life contexts or virtual contexts. Its main purpose is to create students’ needs for learning under a complete and true problem, event or environment. Learners experience the entire process from identifying goals to proposing and reaching goals through interaction and exchanges among members of the community, i.e., cooperative learning, as well as active learning and generated learning. Anchored microlecture is suitable for liberal arts courses such as ideological and political or finance & economics.

The fifth one is theory-practice microlecture model. In this model, theory and practice are combined. It solves the problem of disjointed theory and practice. The teaching part is quite concentrated. It highlights the leading role of teachers and let teachers and students teach, learn and act through the design of teaching tasks and teaching objectives. It builds a quality and skill training framework, enriches theoretical and practical teaching, and improves teaching quality. In the entire teaching step, theory and practice are conducted in a consecutive way, either abstract or concrete. There’s no fixed order between practice and theory. Practice is shown in theories while theories are applied in practice. It makes a breakthrough in training students’ hands-on ability and professional skills. It can fully motivate and stimulate students’ interest in learning. This model is mainly applicable to courses such as practical training of economic management, electrification and machinery.

(III) Innovate in Class Teaching Methods to Realize Guiding and Teaching Integration

Teachers shall master basic methods of pedagogical innovation and try to become smart teachers that are adept at organizing interactive activities and guiding students with questions. To realize innovation in class teaching methods, internalization and expansion are crucial, i.e., internalization of knowledge and expansion of abilities. To materialize internalization and expansion in flipped classroom, four steps shall be taken, that is, test, assignment, collaboration and display. The first step is to test, i.e., examine the result of students’ independent learning at home or in the dorm. It will make students experience sense of achievement and show interest in learning. The second step is assignment, that is, advanced study based on test. It’s an important step of knowledge internalization. Teachers design progressive assignments to let students try solving meaningful problems within their reach. It’s conducive to “assimilation” of cognition structure and the new cognition structure of “compliance”. The third step is collaboration. In terms of problems or confusion encountered by students, teachers organize workshops or seminars to let students share information and gain useful information and experiences in equal discussions. Meanwhile, students can air their own opinions, brainstorm and generate a number of new creativities or opinions. The themes will be constantly strengthened until problems are eventually addressed. The fourth step is display. In other words, students can display achievements of their learning activities. It has become a teaching strategy of many universities. In practical teaching, display actually
contains an integrated pattern of “display-question-explain”. In class, through collaborative learning, students recommend a representative to explain questions of other students. Moreover, the student representative is duty bound to elaborate all questions. In the process, it usually sets off new questions and illustrations until the question is solved. Teachers consciously guide students to question and explain, and correct what’s improper in the display process. The integrated form of “display-question-explain” can well give scope to students’ abilities of innovative thinking, problem-solving and language expression. Moreover, it can truly put class teaching method innovation of “guiding and teaching integration” microlecture model into operation.

4. Conclusion

Taking the opportunity of microlecture to study pedagogical reform in university education and guide students in independent learning is a desirable supplement to and innovation of traditional education and teaching approaches. In practical teaching, teachers shall organically combine three modules of microlecture including independent learning task list, learning resources and class teaching method innovation, and keep innovating in teaching means and approaches. Besides, they shall stimulate students’ learning enthusiasm, initiative and creativity, encourage students to take a greater part in learning, train and strengthen students’ question awareness, expand their autonomy, and truly shift traditional “teaching oriented” to “learning oriented”. Meanwhile, teachers shall pertinently realize one-on-one teaching in class teaching and act out “guiding and teaching integration” in reality. It will greatly save teaching time in class and improve learning efficiency. However, given that microlecture is still at an exploratory stage in university education, it requires all teaching staff to keep probing and innovating in practice.

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