

Design and Application Research of Flipped Classroom Teaching Model in Applied Undergraduate Colleges

-Taking Management Courses as an Example

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Abstract—College students of the post-00s generation have an active thinking and a high emotional quotient, but their self-learning habits have not yet been developed. The curriculum for management majors focuses on the cultivation of students' practical application ability, while the traditional teaching model fails to achieve the expected results. This research seeks to attach importance to students' zone of proximal development, the learners' analysis, learning contents and activity analysis, building a teaching model of Two Parts, Three Phases and Bilateral Interaction to mobilize students' learning initiative and enhance their application and innovation capabilities.

Keywords—*Flipped Classroom Teaching Model; Applied Undergraduate Colleges; Management Majors*

I. THE CONNOTATION OF THE FLIPPED CLASSROOM TEACHING MODEL

Since the concept of the flipped classroom was introduced to China in 2011, it has aroused a hot discussion in the academic circle, and many colleges have tried to launch this classroom on account of the certain promotion effect from the flipped classroom on students' abilities of independent learning and innovation, and improvement of teachers' teaching quality. However, when practising it, many teachers can not clearly describe the function of the flipped classroom. In the online survey, the data show that only 2.78% of people think that they know the flipped classroom well, 55.56% says that they know this classroom a little, and the remaining 40% has no idea about it [1-3]. What is flipped for the so-called flipped classroom on earth?

A. Definition of flipped classroom

The flipped classroom is an adjustment of the traditional teaching process. The traditional teaching model is that teachers teach in the classroom and arrange after-class assignments, which are completed by students themselves after class, while in the flipped classroom, students can complete learning relevant knowledge by watching video, previewing courseware [4-5], documents and other teaching resources online before class, and they can also learn deeply through interactive methods such as discussion and joint work between teachers and students, as well as among students in the classroom [6], which optimizes the knowledge internalization process to achieve a better educational result.

B. The essence

In essence, the flipped classroom teaching model can promote educational balance and fairness and achieve a personalized education.

(1) Open curriculum resources can be used repeatedly. Storability of the resources makes it easy for learners to arrange learning plans based on their own learning progress. The resources can take the individual differences into account and lay a solid foundation, which is conducive to achieving the targeted teaching.

(2) Conduct timely and accurate information feedback. With the help of the terminal, teachers publish tasks and then students complete them in time. Old teachers can quickly know the correct rate and the error rate, directly finding the weak link of students through the background data analysis, which is beneficial to the analysis of the learning situation and the design of the personalized learning solution.

(3) Bring forward the process of teaching. Teaching in the flipped classroom occurs when recording lecture videos, which happens behind the screens not in the classroom, different from the traditional teaching model.

(4) Knowledge internalization is completed through companionship in the classroom. Accompanied by teachers and classmates, the relevant issues are deeply analyzed to optimize the knowledge internalization process.

II. THE CONSTRUCTION OF THE FLIPPED CLASSROOM TEACHING MODEL

Different from academic colleges, applied undergraduate counterparts carry out the application-oriented professional talent cultivation based on quality education, which not only emphasizes the basic and staged nature of undergraduate education, laying the foundation for their future development, but also highlights the requirements of front-line work of applied talent to meet the needs of social development. Therefore, their teaching contents must fully reflect the needs of the society and professions, teaching models and methods focusing on the combination of theory and practice.

[The Subject Project] In 2017, Jilin Province Higher Education Teaching Reform Research Project was approved to support the project Research and Practice of the Applied Undergraduate Colleges' Flipped Classroom Teaching Model--taking management courses as an example.

A. Clarification of teaching objectives of flipped classroom

Management majors include marketing, business administration, tourism management, financial management, etc. Their main task is to train the applied management talents who can apply management-related professional knowledge, solve practical problems in enterprise development, bring benefits to profitable organizations, and serve front-line work of enterprises. In its essence, management majors belong to application-oriented majors. Theoretical knowledge of management professional courses is easy to understand, focusing on its applicability and the cultivation of students' practical application ability while traditional heuristic teaching fails to achieve expected results, so this study strives to strengthen education of both teachers and students with the help of the design of the flipped classroom, thereby motivating the students' enthusiasm and giving play to their potential.

The teaching goal of the flipped classroom is transformed from the knowledge teaching in traditional classrooms to the capacity cultivation. The flipped classroom will assign new knowledge learning before class with the help of the network technology. Besides, internalization and application of knowledge will be carried out under the guidance of teachers in class, which is conducive to realizing the education of students in accordance with their aptitude, promoting the development of students' self-learning habits, independent thinking ability and the formation of innovative thinking.

B. Identification of key factors for the implementation of the flipped classroom teaching model

The flipped classroom improves the students' self-learning ability, their innovative ability, and the quality of teaching. However, the reform of the flipped classroom teaching model faces some challenges, including whether students can learn independently, whether teachers can play the role of leaders, whether existing media can provide the support and so on, so the effective implementation of the flipped classroom teaching model should adjust the relationship among the three elements, and improve the teaching methods and students' self-learning ability on the basis of full analysis of three key elements

1) Students' autonomy element

In the flipped classroom teaching model, students are the main subjects, so it can directly influence the teaching effect and quality of the flipped classroom whether students can participate actively, whether students can actively watch teaching resources, complete exercises, and think before class according to task lists issued by teachers, whether students can actively participate in the interaction in class and complete the internalization of knowledge with the help of teachers and classmates, as well as whether students can reflect after class. Therefore, mechanisms of guidance, reward and punishment should be used to train the master consciousness of students in the flipped classroom and enhance their ability to learn independently. For example, management courses will take watching videos and completing exercises before class as an

ordinary grade assessment, which effectively enhances the initiative and participation of students' independent learning.

2) Teacher quality element

In the flipped classroom teaching model, the teacher plays the role of the guide. The teaching goal is not only the knowledge teaching but also the cultivation of students' abilities, or the cultivation of people, teachers having an arduous task in the flipping classroom. As a facilitator of students' knowledge construction, teachers need to have the ability to create problems, the awareness of unity of knowing and doing, and the ability of linking theory with practice, so teacher quality is very important for the success of the flipped classroom teaching model. It is necessary to strengthen the training of teachers and cultivate them to establish a view of the integrated teaching goal so that they can establish a target framework for student development based on the needs of society for the comprehensive quality of talents. Enhancing the professional competence of teachers mean that they should be able to effectively sort out the course contents, build a knowledge tree with relevant knowledge points, and promote the construction of students' knowledge; improving teachers' teaching design ability mean that they can create situational problems that both reflect practical needs and motivate the initiative of students; strengthening the information ability of teachers help them to develop the design curriculum resources by means of modern information means.

3) Network environment element

The implementation of the flipped classroom teaching model can't be realized without the support of information technology and network environment. The effective support of information technology and network environment is necessary for production and release of teachers' video course wares at early stage, free downloading and watching those courseware by students, and the communication between teachers and students across time and space. It can be said that the information technology and the network environment are the most basic factors that determine the effective implementation of the flipped classroom teaching model, which requires colleges to increase the necessary network construction investment, build and improve computer rooms and electronic reading rooms, establish a high-quality education and teaching platform, and cover high-efficiency Wi-Fi throughout the colleges, thereby ensuring that students can flexibly learn online courses beyond time constraints and complete learning task in time.

C. Construction of the teaching model of Two Parts, Three Phases and Bilateral Interaction

With the help of research results of domestic and foreign scholars, this study insists on the teaching goal of ability cultivation of the flipped classroom, combines characteristics of applied undergraduate management professional courses, and takes Changchun University of Finance and Economics as an example, thereby building the teaching model of Two Parts, Three Phases and Bilateral Interaction, as shown in the figure.

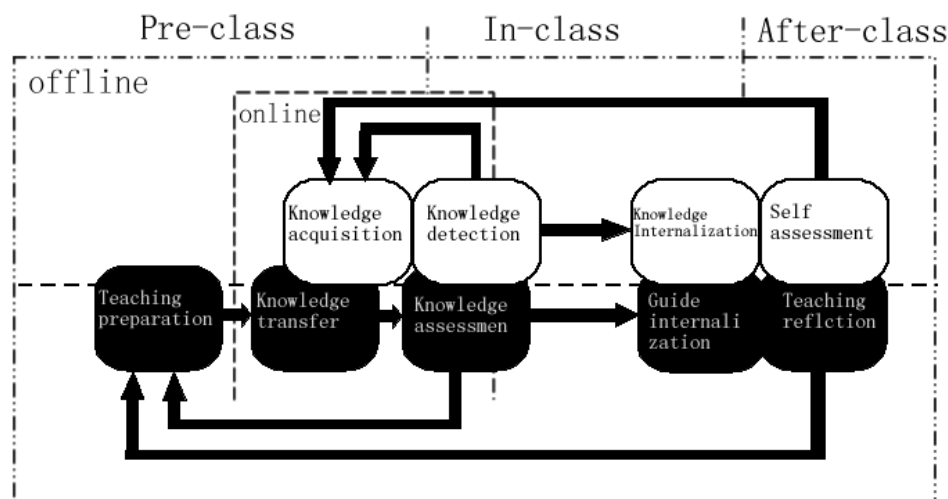


Fig. 1 The teaching model of Two Parts, Three Phases and Bilateral Interaction

Two Parts means that students are the main body and teachers the main leader. In this model, students are no longer the products of teaching, but the main body of learning; teachers are no longer the interpreters, but play the role of designers, organizers and instructors.

Three Phases are the three phases before, in and after class. Before class, teachers should conduct course analysis, course design, video production, as well as problem creation and release; in class, they should provide in-depth guidance to students; after class, they should reflect on teaching. Students should independently study relevant curriculum resources before class, conduct in-depth study in class, and reflect after class.

Bilateral Interaction means interaction between teachers and students. In this model, activities of teachers and students form a circle respectively, and at the same time, there are crossovers between the two circles in the three phases.

III. THE TEACHING DESIGN BASED ON TWO PARTS, THREE PHASES AND BILATERAL INTERACTION

A. Analysis of teaching objects

Analysis of teaching object focuses on student types, learning ability and student foundation.

Applied colleges are derived from the popularization of higher education, mostly composed of independent colleges and private ones. Due to differences in student sources, students in applied colleges have weak basic knowledge, unformed good study habits and poor self-discipline ability, as well as lack learning initiative, their overall learning situation not ideal. However, the students, enthusiastic and optimistic, generally have high EQ, agile thinking, wide range of interests, and strong social activities.

B. Teaching content design

There are a large number of management professional courses, and different professional courses will involve different professional terms and basic principles. Some content is to tell students "what", which belongs to a declarative knowledge; the other content is to tell students "how", which belongs to a procedural knowledge. For the procedural knowledge of how to do, if only relying on the knowledge taught by teachers in class and the rote learning of students, there is no way to make the students really master the knowledge, let alone make them to use knowledge with high proficiency at work. Such contents need to be internalized for students by means of the flipped classroom. Therefore, teachers are required to distinguish teaching content and identify the links that need to be flipped, instead of applying mechanically. For example, the process of negotiation in Business Negotiation belongs to the procedural knowledge, suitable for the flipped teaching.

C. Design of teaching resources

According to the teaching model of Two Parts, Three Phases and Bilateral Interaction, course resources mainly include videos, learning task lists, as well as other supporting texts, audio, videos and pictures. Videos should be produced on the basis of specific conditions of the teaching objects, the full analysis of teaching content, and the reference to existing materials. The content of videos should be logical, the language organized clearly and logically, and pictures vivid and concise. For the design of task lists, learning objectives and problems (tasks) should be designed according to the characteristics of courses and students with the moderate difficulty. The design of other related supporting knowledge should reflect the self-study auxiliaries before class and the expansion effect of classroom knowledge.

D. Teaching strategy design

1) Classroom activity strategy

The flipped classroom teaching model mainly aims at creating application contexts of knowledge points by teachers, students using the theoretical knowledge learned by themselves to complete the tasks issued by teachers. During completing the task, students may encounter various obstacles or problems. They solve the problems by getting help from teachers and classmates so that they finally master the use of knowledge. Teaching activities can be the flexible use of task-driven teaching, case teaching, heuristic teaching, group discussion, role playing, and role exchange, thereby enhancing the initiative and participation of students. In addition, no matter which teaching method is adopted, the attention should be paid to the overall design of its teaching activities and the learning links should be closely linked. Meanwhile, teachers should be able to make immediate evaluation and guidance to optimize the internalization process of students' knowledge.

2) Group cooperation strategy

The flipped classroom emphasizes accompanying learning of teachers and classmates. In the flipped classroom teaching model, multiple links require groups to work together to complete tasks. Group members' communication ability, presentation ability and collaboration awareness can be improved through interaction and mutual inspiration of group members. There are two ways to design group members. One is to organize groups by students voluntarily, where the group members have a high degree of tacit agreement, but the collision of thoughts may be limited while the other is to build groups by teachers according to students' characteristics, where differences between groups can be reduced and there are more opportunities for group members to make exchanges and collisions, but the low degree of tacit agreement among members may limit the development of group activities. Both forms have their own advantages and disadvantages and can be combined for use. Members are composed of free combination and teacher designation. 4 to 6 persons a group is recommended in order to reduce the phenomenon of ineffective interaction and free ride.

E. Teaching evaluation design

In the teaching model of Two Parts, Three Phases and Bilateral Interaction, the perspective, content and method of

evaluation have changed with the increase of students' subjectivity. The evaluation should not be based solely on exam results. Students' performance in watching videos before class, class discussion, class presentation and group cooperation should be included in the assessment process. The process evaluation and the result evaluation should be combined, and the self-evaluation and mutual evaluation methods should be unified. The process evaluation can be made by the number of times that the students watch the videos and the online test results, or made by the observation on the class performance; the result evaluation can be based on the evaluation of exams or reports; self-assessment and mutual evaluation can be carried out by means of relevant scale evaluations.

IV. THE FLIPPED CLASSROOM TEACHING APPLICATION BASED ON TWO PARTS, THREE PHASES AND BILATERAL INTERACTION

The teaching model of Two Parts, Three Phases and Bilateral Interaction is applied in teaching Marketing, the professional management course of the Changchun University of Finance and Economics.

A. Before class

Teachers need to produce teaching videos, electronic course wares, bibliography, subject documents and other teaching resources, as well as prepare learning task lists before class. Teachers are required to reorganize the contents of the course. Taking Marketing as an example, the teaching content should be decomposed into 6 modules and 11 scenarios. Under each scenario, the knowledge points which need to be mastered should be clear, and the teaching resources should be produced around each knowledge point (see Table 1). The study task lists require the teacher to design according to the difficulty level of the marketing knowledge points to be taught, but all lists should include the learning objectives, learning contents, etc. (see Table 2). After the teacher has completed the teaching resources and task lists, the resources and lists will be released on the network platform.

Students choose the appropriate time and place to watch the teaching resources and record the difficult questions according to the task lists.

TABLE I THE COURSE KNOWLEDGE FOR THE MARKETING

Module	Work scenarios	Knowledge points
Summary of the marketing	1. Know the marketing activities	(1) Market, marketing and other related concepts (2) The essence of marketing management (3) The history of marketing concepts
Environmental analysis	2. Analyzing the market environment	(1) Micro and macro environment (2) SWOT analysis method
	3. Conduct the marketing research	(1) Procedures and methods of market research (2) Questionnaire design (3) Writing of research report
	4. Analysis of customers' buying behavior and psychology	(1) Consumers' market and organization market (2) Main factors of consumers' buying behavior (3) Consumers' buying decision process (4) Consumers' buying behavior types (5) Organization market characteristics and buying types

Table I, cont		
Strategic formulation	5. Market positioning	(1) Market segmentation (2) Target market selection (3) Market positioning
	6. Competitor analysis	(1) Competitor analysis (2) Market leader strategy (3) Market challenger strategy (4) Market follower and nicher strategy
Marketing mix	7. Design products and services	(1) The overall concept of the product (2) The life cycle of the product (3) New product (4) Product portfolio (5) Brand and packaging
	8. Formulating the price of the product	(1) Factors affecting the pricing by enterprises (2) Basic methods of pricing (3) Price strategy
	9. Establishing the distribution channels	(1) Concepts and types of distribution channels (2) Distribution strategy (3) Factors affecting channel design
	10. Formulating the promotional plan	(1) The concept of promotion (2) Mastering the promotion combination strategy
Marketing management and control	11. Marketing management	(1)Formulating the marketing plan (2) Skills for executing and controlling the marketing activities

TABLE II THE LEARNING TASK LISTS

Learning Contents	The promotion combination strategy
Learning objectives	Flexible use of various promotional tools to formulate the promotional combination plan
The key and difficult points of learning	The key point is the formulation of promotional plan. The difficult point is the characteristics and application of various promotional tools.
Study tasks:	Watch the teaching resources related to the promotion strategy, and learn about the relevant materials of the promotion strategy of the cooperative enterprise -- Changbai Mountains One Mountain and One Blue Group. Analyze the problems existing in the promotion strategy after being familiar with the background materials of the enterprise. Answer the question: if you are the marketing manager of the enterprise, how will you formulate the promotion plan?
Learning confusion and advice	The group members discuss together, raise the confusion and suggestions, and make a summary

B. In class

The main task of classroom activities is to help students complete the internalization of knowledge, which is the core phase in the teaching process of the flipped classroom.

Taking Marketing as an example, teachers in class should introduce the course contents, explain the relevant knowledge in a timely manner, and organize students to conduct an independent thinking or a group collaboration for the learning task. Besides, teachers provide inspiration, tutorship and one-to-one communication, fully mobilizing the initiative of

the students and trying to let each student participate in the group discussion to solve problems together and show the results. Finally, teachers and students will give a feedback on the classroom teaching activities together. In this process, the role of teachers is mainly to guide students to focus on the key contents and key knowledge points in the learning task lists to prevent students from deviating from the learning contents; the teachers should guide students to combine independent exploration, group discussion and collaborative learning, inspiring students to find solutions to difficult problems.

TABLE III CLASS ACTIVITY DESIGN

Activity links	Objectives	Time distribution
Introduction of courses	Arouse the attention of students.	3 minutes
Timely teaching	Based on the learning situation of students before class, timely supplement and explain the relevant problems.	10 minutes
Group discussion	Group members communicate, discuss together, and learn together.	15 minutes

Table III, cont

Achievement Exhibition	Demonstrate conclusions or plans after discussion, and deepen the knowledge internalization	15 minutes
Evaluation summary	Summarize the project knowledge and student performance, and consolidate and strengthen knowledge	2 minutes

C. After class

After-class activities are mainly to summarize and consolidate what students have learnt. By summarizing their own class performance and reviewing the knowledge points that teachers have summarized in class, students can consolidate the key and difficult points of the course and deepen their impression on the course contents. Based on the feedback from students, the teachers summarize the common problems making students fail to effectively achieve the teaching objectives, adjust and revise the relevant teaching resources, and form a closed loop of teaching, thereby achieving the improvement of students' professional ability and teachers' teaching ability.

V. CONCLUSION

In essence, the flipped classroom teaching model is an adjustment of the teaching process and belongs to the micro-innovation; in form, it brings forward the knowledge teaching and changes the knowledge internalization. The use of the flipped classroom teaching model can help students achieve the deep learning, solve problems independently, and develop the innovative thinking ability. The applied undergraduate education emphasizes the cultivation of front-line talents, and colleges' study schedules are relatively flexible, so applied undergraduate colleges are suitable to adopt the flipped classroom teaching model. It should be noted that although the flipped classroom teaching model has a lot of help to improve the quality of teaching and students' abilities, it has a high requirement on the teaching level of teachers and students' self-learning ability. If the relevant requirements are not met, the effect will be greatly reduced.

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