

Research on the Flipped College English Class Based on “Knowledge Internalization”

Fei Deng

School of Foreign Languages, Sichuan University of Arts and Science, Dazhou, Sichuan, China

Abstract—In author’s *Literature Review of the Flipped Classroom*, it introduces the brief history, the definition, the theoretical basis of the Flipped Classroom. While in this paper, it firstly introduces the definition, characteristics, the new interpretation and three stages of knowledge internalization in the Flipped Classroom. After that the paper makes an analysis that how to construct the Flipped Classroom teaching model in College English, together with some problems. At last it gives out suggestions on the Flipped College English class based on “Knowledge Internalization”.

Index Terms—flipped classroom, Knowledge Internalization, definition, theoretical basis, three stages, construct, problems, suggestions

The flipped classroom, an information teaching method, is reconstructed from teaching time, mode and role, is an innovation of education, and it will definitely play an important role in the field of education in the future. The characteristics of multi-processes and multi-directions in the flipped classroom are conducive to students’ knowledge internalization, but the internalization is a gradual process, which only plays a guiding role for short-term teaching. Therefore, from the perspective of knowledge internalization, it is of great significance to deeply understand their relationship, to better improve the flipped classroom, as well as to promote the reform of teaching.

I. THE DEFINITION AND CHARACTERISTICS OF KNOWLEDGE INTERNALIZATION

Knowledge internalization refers to the learners’ learning, communicating, sharing, accepting, and digesting the new knowledge, which makes it integrate with the learner’s inner knowledge, including knowledge category, literacy, ability and so on. And then it can be transformed into the knowledge base of learners’ innovative ability. Generally speaking, knowledge internalization is to transform the objective things into the learner’s inner things through the processing and recombination by the human brain (Su Wanbin, 2017). It is simply understood as a skill that human beings transform external knowledge into internal knowledge through understanding and absorption. In the process of knowledge internalization, knowledge is first perceived by human brain. And it is necessary to keep the information in the human brain for a short period of time to further process the input knowledge (Zhang Xu, Wen Youkui, 2008). It is also a slow process, requiring the stimulation of knowledge and the accumulation of time.

Knowledge internalization should have the following characteristics (Zhou Tianmei, 2004): First, it is stabilization. Knowledge, once psychologically internalized, should be quite stable. The higher the degree of internalization, the higher the degree of stability, and the closer the forgetting curve is to the horizontal curve, which is represented in the form of long-term or even lifelong memory. Second, it is intangible. The internalized knowledge is in the form of no skill. For example, there are many norms of knowledge in poetry writing. Not only that, but it also requires a high level of application skills, and truly mature poetry writers, their knowledge of poetry writing must be highly internalized without seeing the form and the skills. The third is unconsciousness. The internalized knowledge, when it is expressed or used, is a natural expression, completely perceptual. Fourth, it is intelligence. The internalized knowledge will inevitably transform knowledge into the external form of intelligence connotation and ability. The last one is psychological quantization. Internalized knowledge, philosophically speaking, is no longer a purely spiritual quality of consciousness, but has been transformed into a psychological energy in the physical sense.

II. THE NEW INTERPRETATION OF THE FLIPPED CLASSROOM

A. *Flipped Classroom in the International Context*

For a long time, Flipped Classroom has been widely used internationally in defining online video, which is literally translated as Flipped Classroom in Chinese. This kind of translation is very vivid, which is perhaps because of the over image that we ignore the question: why is it the classroom that is flipped instead of the teacher, the student, the content, the media or anything else? A popular explanation is: students listen to the “video” for class after going home, and discuss problems with “real teacher (or classmates)” in class the next day. It is just “flipped” the “real teacher” in previous teaching in the classroom, while students go home to do homework, just like the classroom in the daytime is moved to the home. So the concept of Flipped Classroom came into being. To some extent, Flipped Classroom is essentially a place where students use online video to learn before class. It emphasizes the learning place.

The definition of the flipped classroom was first given by MaureenLage, Glenn Platt and Michael Treglia, who put

forward that “Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa.” (MaureenLage, Glenn Platt, Michael Treglia, 2000). “Invert” here means “turn inside out or upside down”, which has the similar meaning with the word “Flip”. In 2007, two chemistry teachers named Jonathan Bergmann and Aaron Sams, began to record PPT through video software with voice in Colorado. They uploaded the videos to the Internet to help those students who missed lessons for different reasons. Before long, the two teachers started a more innovative attempt to let all the students watch videos, listen to lectures at home. While in class, teachers mainly help students with their difficulties, or provide help for the students having difficulties in experiments. Therefore, as the real proposers of the flipped classroom, the two chemistry teachers Aaron Sams, Jonathan Bergmann (2013) consider it as a teaching method, which mainly proposes what is traditionally done in the classroom is now done at home, and that students do homework or do some classroom activities in the class. In the same year, Bryan Goodwin and Kirsten Miller (2013) think the flipped classroom makes the students learn tasks before class to spot the difficulties. The tasks all go through three similar procedures: first, before class all the students watch the teaching video designed by the teacher. Second, the students try to finish all the tasks given by the teacher. Third, all the students discuss with teacher or classmates through QQ platform to share the answers and write down those unsolved and difficult questions. Thus the students can work out the unsolved and difficult questions with classmates or teachers rather than get the basic information passively in class.

B. *Flipped Classroom in the Domestic Context*

The change of learning place cannot completely affect or replace the real teaching process of interaction between teachers and students, nor can it make the relationship between teaching and learning change in essence. The essence of flipped classroom is the optimization of knowledge imparts in advance and knowledge internalization brought by the reform of teaching process (Zhao Xinglong, 2013). Therefore, teaching process is only one of the important elements to define flipped classroom. As a truly flipped classroom, two other elements need to be added: technical elements and environmental elements. Technical elements refer to the flipped classroom needs micro-video to support students' autonomous learning, while environmental elements refer to the flipped classroom needs to continuously and systematically analyze students' problems in the learning process, so as to truly improve the quality of classroom interaction. Therefore, the flipped classroom includes three basic elements: first, technical elements, mainly for micro-video; second, process elements, mainly for teaching activities of “before class, during class and after class”; third, environmental elements, mainly for learning analysis system with intelligent diagnosis function. Obviously, the context of the flipped classroom has changed: the flipped classroom has changed from focusing on the learning place to focusing on the whole process of teaching activities; it has changed from focusing on a single learning behavior to focusing on complex educational behaviors including teachers, students, content, media and environment and other factors; it has changed from focusing on watching online video to focusing on the student-centered multimedia environment supported by intelligent diagnosis system; it has changed from focusing on the use of information technology to focusing on the conscious integration of information technology and the whole process of teaching. In this sense, flipped classroom should be renamed “flipped” teaching and learning. The key is that the relationship, status and role between teachers and students have changed substantially. In a word, after the introduction of flipped classroom into China, it has changed in terms of connotation, mode and form. Although they are called “flipped classroom”, the meaning is totally different.

The Chinese scholars pay much more attention to the research of teaching design. For example, in the paper *Study on the Key Factors of the Flipped Classroom Teaching Mode*, it discusses several important factors in implementing the flipped classroom, namely the design of the teaching videos and classroom activities, together with the construction of the individual cooperative learning environment and so on (Zhang Jinlei, 2013). In Wang Hong's paper *The Design of Flipped Classroom Teaching Mode—Analysis Based on Typical Cases at Home and Abroad*, she constructs the flipped classroom teaching mode by analyzing the domestic and foreign typical cases (Wang Hong, 2013). Mr. Zhang Yunfeng, in his paper *The Exploration of the Flipped Classroom Teaching Mode* summarizes the characteristics and the design of the flipped classroom (Zhang Yunfeng, Hu Qing, 2013). He believes that the teaching design process mainly covers three parts as the design of teaching videos before class, targeted training and designed classroom activities. In an article *Design and Application of Task-based Flipped Classroom Teaching Mode*, the author analyzes the advantages and the facing challenges of the flipped classroom, and then constructs the teaching mode named “problem-core and task-driven” (Li Hailong, 2013). These previous studies have played an important role in promoting the widespread practice of the flipped classroom in China, and also laid the foundation for the relevant practical research in China.

III. THREE STAGES OF KNOWLEDGE INTERNALIZATION IN THE FLIPPED CLASSROOM

A. *Pre-class Learning*

The first step for students to acquire knowledge in the flipped classroom is pre-class learning. Teachers arrange courses according to the teaching plan, and the students have to learn before class according to the learning tasks assigned by the teachers. The learning tasks are accomplished step by step according to the learning plan by collecting information online, downloading micro-videos pushed by teachers (Weng Senyong, 2016). After completing pre-class learning, learners have a preliminary understanding of new knowledge. New knowledge has been partially assimilated

in its own knowledge, which is equivalent to internalization. However, it is a rough process in this stage of knowledge internalization, and there are many problems in the process of independent learning. All these problems will have an impact on the knowledge internalization, such as incorrect differentiation of key and difficult points of knowledge, incomplete grasp of knowledge points, and failure to effectively distinguish the authenticity of collected data. At this stage, if students mistakenly internalize incorrect knowledge, their own knowledge will be changed. Due to the influence of wrong knowledge, students can only accept knowledge in an adaptive mode, thus failing to internalize repeatedly in the latter two stages. Therefore, pre-class learning is the first stage of knowledge internalization, and it is also the enlightenment stage of knowledge internalization, with the characteristics of cognitive ambiguity and many uncertain factors. Although the effect of knowledge internalization is not obvious, it is the most important part in the flipped classroom.

B. Organizing and Expressing

In an experiment conducted at Baylor University in the United States, 60 college students were divided into three groups to examine their ability to recall information. In 30 minutes, the researchers played 24-second clips of 40 films to the college students. In addition to the main line of the plot, they should also be examined their memories of the details such as voice, color, action, background and so on. One group was asked to talk to others after watching the clips, the second group was asked to recall it with short visual cues provided by the researchers, and the third group did nothing. And then the students were asked to recall the clips after 7 minutes and 7 days respectively. The results showed that as time went by, the students could recall less and less information. But the first group that told the clips to others recalled the most, both plot and peripheral details. This experiment shows that oral expressing after learning is conducive to deepening the memory of knowledge and promoting the knowledge internalization. In the flipped classroom, the roles of teachers and students are exchanged, so that students act as teachers to summarize the knowledge learned before class, and express their understanding through narration. The organization and expression of students is a process of reorganization of their ideas. During the narration, learners extract the content they want to express from their own knowledge system, stimulate the brain twice. The repeated stimulation promotes the consolidation of knowledge, which is equivalent to another internalization of knowledge. This stage is the consolidation stage of knowledge internalization, which has the effect of strengthening knowledge internalization and realizing long-term memory, and plays the role of knowledge consolidation.

C. Optimizing

Teachers' optimization is the last step in the flipped classroom, and it is also a crucial stage of knowledge internalization. This stage is mainly composed of guidance, error correction and supplement. Teachers are here to guide students rather than impart knowledge. In the flipped classroom, the teacher acts as a listener to observe, to master students' understanding of knowledge, to find out students' problems, to guide students to form self-awareness, and to be good at discovering their own shortcomings and mistakes. And correct students' understanding of wrong knowledge in time in order to make students avoid internalizing wrong knowledge into their own knowledge structure. In traditional teaching mode, students are passively indoctrinated and confused. While in the flipped classroom, students are the creators of problems. Teachers point out problems and solve them in class. The students have a correct understanding of knowledge, which is reprocessed in their minds, and knowledge is internalized for the third time.

IV. CONSTRUCTING THE FLIPPED CLASSROOM TEACHING MODEL IN COLLEGE ENGLISH

In the flipped college English classroom, teachers should make clear teaching goals, make full use of micro-video learning resources, arrange students' pre-class tasks scientifically and reasonably, cultivate students' autonomous learning ability by watching micro-videos, and effectively absorb key knowledge in learning, so as to deepen students' understanding. Carrying out a variety of classroom teaching activities according to students' learning characteristics, cultivating students' ability to think independently, improving students' ability to solve practical problems, are also helpful to students' ability of language expression and self-exploration. There are few flipped college English classroom teaching modes in today's colleges and universities, but the effect is very obvious. The use of micro-video learning resources has greatly stimulated students' interest in learning, and students' learning attitude has changed from passive to active. However, many students are still not good at expressing their views and opinions, which seriously affects the teaching effect. Therefore, it is necessary for teachers to further guide students and make them actively participate in the classroom (Wang Zhihong, 2016).

The specific process of the teaching mode is as follows:

A. Preparation before Class

This process requires college English teachers to make clear the specific features of college English courses by investigating the needs of society and enterprises, and design three modules of text appreciation, oral communication and practical writing, in combination with the goal of college talent cultivation and their rich teaching experience. Task-driven approach can be used to analyze, summarize and guide representative and typical people, events and objects as specific cases. Integrating the knowledge points imparted into students' tasks can improve students'

professional ability and humanistic quality.

B. Developing Resource

Micro-video is an important way to guide and assist students' autonomous learning. Therefore, it is necessary to highlight autonomy and openness, and pay attention to the creative conception under the network environment while designing the micro-video. Specifically including text documents, PPT video files, audio files and other materials will be the learning resources. For example, in order to create a learning situation in the workplace and arouse students' thinking, teachers should set relevant questions according to the actual situation and find solutions to the problems. Generally speaking, the design of college English courses can be divided into different micro-videos, such as text appreciation, oral communication and practical writing modules, covering 80% of the key and difficult points in the textbook. Besides, additional task requirements can be attached to the micro-video, including the use manual of learning resources, lists of learning tasks, etc., so that students can form the habit of autonomous learning network resources (Feng Yuan, 2014).

C. Learning in Class

The flipped classroom focuses on the transformation of the roles of teachers and students. Teachers are gradually transformed from traditional imitators into instructors of students' learning and let students transform into the main part of learning. Teachers divide students into different groups, considering the differences between students in learning ability, interests and hobbies. Each group collaborates with each other to discuss, evaluate and present the results. After receiving the task, the group first discusses the difficult problem and analyzes the problem, and then it can consult the electronic data and relevant books to conduct in-depth discussion, find out the methods and steps to solve the problem, and put forward the effective solution to the problem.

D. Evaluating

The main purpose of evaluation is to master the overall learning effect of students and to test whether teachers' teaching methods are correct. It also can help teachers adjust teaching goals and teaching methods in time, and significantly improve students' learning efficiency and enthusiasm. The evaluation system should be based on multi-aspect, and make use of mutual evaluation between teachers and students to verify the important role of micro-video and the flipped classroom in College English teaching. The evaluation system mainly includes the evaluation of resource utilization, classroom participation and comprehensive performance, and so on. And the mutual evaluation between teachers and students is the core part of the whole system (Zhao Xinglong, Zhou Xu, He Kekang, 2012).

V. PROBLEMS IN THE FLIPPED CLASSROOM

A. Time Schedules

The Country has been emphasizing the quality education for students to reduce their burden. However, due to the pressure of CET-4, CET-6 and employment, many schools still adopt the exam-oriented education model to help students improve their academic performance. Therefore, the flipped classroom, which requires students to spend a lot of time after class, requires the support of the school in teaching schedule.

In the flipped classroom, teachers should not occupy students' study time in the evening, but let them have free time to watch teaching videos. For schools that do not attend self-study at night, teachers should strictly control the amount of homework. The main task of students after class is to watch teaching videos and complete a small number of exercises. For schools that need to attend self-study at night, teachers should not give lectures during self-study at night, so that students can complete the pre-class learning in the self-study at night.

B. Applicability of Course

At present, most foreign flipped classroom abroad are science courses. The knowledge points of science are clear, and many teaching contents only need to clearly teach a concept, a formula, an example and an experiment, which is convenient for the flipped classroom. However, in liberal arts courses, such as politics, history, Chinese and other humanities courses, will involve multi-disciplinary content, and requires teachers and students to communicate ideologically and emotionally in order to achieve good teaching results.

So, how to apply the flipped classroom model in liberal arts teaching? The solution to this problem is a major challenge for liberal arts teachers, which is to improve the quality of teaching videos and arouse students to think. Summarize the basic knowledge points taught in the course through the teaching video, elaborate relevant theories, let students look up materials and think after class, and then communicate and discuss with teachers and classmates in class, so as to deepen their understanding step by step. Therefore, for different courses, teachers should adopt different strategies to complete the flipped teaching, and promote teaching reform according to students' feedback.

C. Information Technology Support in Teaching

Undoubtedly, the flipped classroom needs the support of information technology. It needs computer hardware and software to build a personalized and collaborative learning environment from teachers' making teaching videos,

students watching teaching videos at home.

The quality of teaching videos has an important impact on students' learning effect. From pre-recording to post-editing, professional technical support is needed. And video design in different courses will also have different styles. The schools need to provide technical support to teachers, who will provide experience for the follow-up teaching videos (Zhang Jinlei, Wang Ying & Zhang Baohui, 2012). In addition, the success of the flipped classroom depends on the degree of communication between teachers and students, students and students. It is very important to use information technology to build personalized and collaborative learning environment for students, which involves the support of teaching platform.

D. Teachers' Professional Ability

Teachers play an important role in the efficient application of a new teaching model in teaching. In the flipped classroom, the quality of teaching videos, the communication between students, the arrangement of learning time and the organization of classroom activities all have an important impact on the teaching effect.

With the help of video recording technicians, teachers record emotional and lively teaching video to avoid rigid and monotonous narration. And teachers should guide students to communicate actively in the network teaching platform. Through question-based, project-based inquiry learning, students' enthusiasm and inquiry can be mobilized. The organization of classroom activities also needs teachers to design according to the characteristics of the subject.

E. Requirements for Students' Autonomous Learning Ability

After watching teaching videos after class, students complete their own exercises and search for information on the Internet, summarize the problems, and then discuss with teachers and students in class. All these are based on students' good autonomous learning ability. Only students with autonomous learning ability can learn the course through teaching video, find out their problems in the pre-class exercise, and reasonably arrange their learning time, and communicate with teachers and classmates. Therefore, in the flipped classroom, we should pay attention to the cultivation of students' autonomous learning ability.

F. The Change of Evaluation Methods

The traditional paper test method test cannot test the learning effects of students in the flipped classroom, because the flipped classroom also involves students' cooperative ability, organizational ability, personal time management ability, expression ability and so on. Teachers must change their evaluation methods. In addition, the evaluation of students' emotion, attitude and values should be paid attention to, and the change of evaluation method needs the support of the school's policy system.

VI. SUMMARY AND SUGGESTIONS

A. The flipped classroom is closely related to the knowledge internalization, and which is divided into three stages in the flipped classroom teaching mode. "Pre-class learning" is the enlightenment stage of knowledge internalization. Although the effect of knowledge internalization is not obvious, it is the most important part of the flipped classroom. "Organizing and expressing" is the consolidation stage of knowledge internalization, which can be achieved through the exchange of roles between teachers and students in the flipped classroom. "Optimizing" is the key stage of knowledge internalization, and teachers give students correct knowledge to achieve the re-internalization of knowledge.

B. In order to improve students' knowledge internalization and effectively carry out pre-class learning in the flipped classroom, teachers should fully understand students' knowledge structure before designing teaching. Students with solid foundation are put into each group to form a more balanced study group, who can help each other before class to solve the problems found in the study. Before organizing learning, teachers should determine the learning goals, key points and difficulties, set problems and exercises, and draw up learning plans.

C. Sharing teaching experience. Teachers should give priority to learning methods in their teaching, and the new teaching methods should not be based on traditional teaching methods. Teachers must have gone through a lot of explorations and discoveries in the preparation. Teachers should share their learning experience with students. Guiding students to actively explore is conducive to students to clarify their learning ideas, form independent thinking ability, and better internalize knowledge.

D. In the flipped classroom, the roles of teachers and students have been exchanged. While in teaching, teachers let students act as real teachers to prepare a complete class when conditions permit. In that case, students stand in the teacher's position to think, to better grasp their knowledge in class. Let the students achieve the effect of knowledge internalization in practice.

REFERENCES

- [1] Aaron Sams, Jonathan Bergmann. (2013). Flip Your Students' Learning. *Educational Leadership*, 3, 16-20.
- [2] Bryan Goodwin, Kirsten Miller. (2013). Evidence on Flipped Classroom is Still Coming in. *Educational Leadership*, 6, 78-80.
- [3] Feng Yuan. (2014). Opportunities and Challenges of Foreign Language Courses in Colleges and Universities under the Background of the Initial Construction of Foreign Language Educational Technology. *Computer-Assisted Foreign Language*

- Education*, 1, 3-4.
- [4] Li Hailong. (2013). Design and Application of Task-based Flipped Classroom Teaching Model. *Modern Educational Technology*, 9, 46-51.
- [5] MaureenLage, Glenn Platt, Michael Treglia. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *Journal of Economic Education*, 31, 30-43.
- [6] Su Wanbin, Li Xiaoping, Zhao Fang. (2017). Viewing Flipped Classroom from the Perspective of Knowledge Internalization. *Bulletin of Sport Science and Technology*, 10, 32-33.
- [7] Wang Hong. (2013). The Design of Flipped Classroom Teaching Model—Analysis Based on Typical Cases at Home and Abroad. *Modern Educational Technology*, 8, 5-10.
- [8] Wang Zhihong. (2016). Knowledge Internalization Process and Teaching Model Design in the Flipped Classroom. *Journal of Heilongjiang College of Education*, 7, 42-44.
- [9] Weng Senyong. (2016). Research on Knowledge Internalization of Mobile Learning Based on Micro-Mu Learning System. *The Chinese Journal of ICT in Education*, 9, 24-28.
- [10] Zhang Jinlei. (2013). An Analysis on the Key Factors of Flipped Classroom Teaching Model. *Distance Education in China*, 10, 59-64.
- [11] Zhang Xu, Wen Youkui. (2008). Research on Knowledge Internalization and Externalization Based on Cognition. *Journal of Information*, 3, 61-65.
- [12] Zhang Yunfeng, Hu Qing. (2013). The Explorer of the Turnover of Classroom Teaching Mode. *Time Education*, 3, 105-106.
- [13] Zhao Xinglong. (2013). The Advantages and Limitations of Flipped Teaching. *Journal of the Chinese Society of Education*, 4, 65-68.
- [14] Zhao Xinglong, Zhou Xu, He Kekang. (2012). Overview of Writing Text Analysis in the Area of Educational Technology. *Morden Distance Education Research*, 6, 30-36.
- [15] Zhou Tianmei. (2004). The Psychological Mechanism of Knowledge Internalization. *Jiang Xi Social Sciences*, 7, 176-179.

Fei Deng was born in Sichuan, China in 1981. He is currently an associate professor in the School of Foreign Languages, Sichuan University of Arts and Science, Sichuan, China. He has finished 4 scientific research subjects and published 25 papers in journals. He is a member of Sichuan Applied Foreign Languages Institute. His research interests include Foreign Language Teaching, and Translation Theory and Practice. This article is a periodic achievement of A Study on Flipped College English Teaching Based on Knowledge Internalization in Sichuan University of Arts and Science (SCWYH19-14), sponsored by Sichuan Foreign Language Literature Research Center & Shanghai Foreign Language Education Press.