

# An Analysis about Influencing Factors of Learning Initiative in the Flipped Classroom

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**Abstract:** Learning can be divided into active learning and passive learning. The essential core of flipped classroom is to change students' passive learning into active learning, however, learning initiative plays a crucial role in the smooth implementation of flipped classroom teaching to achieve the expected teaching objectives. This paper mainly makes an in-depth analysis of the factors affecting learning initiative in flipped classroom. It aims to provide theoretical reference for improving the learning initiative of middle school students in flipped classroom.

## 1. Introduction

Plato, an ancient Greek philosopher, talked about education in *The Republic* that the basic principle of education is to establish a good system of thinking as a child. Education does not need to be forced, and can not be forced, or even can not be forced. Any cramming method of education will only leave people empty minds and nothing. Only by integrating the elements of edutainment in early education can we discover our children's interests more quickly.

In 1997, Dulangkou Middle School in Chiping County, Liaocheng City, Shandong Province, began to carry out the new curriculum reform step by step, and tried to return the classroom to the students with creating a new model of autonomous learning named "336"; in 2011, Jiangjin Jukui Middle School in Chongqing took the lead in practice and gradually explored the "four steps before class" and the "five links in class" which are suitable for the school to reverse the basic classroom mode; and in 2014, Hongya Middle School in Sichuan Province followed the teaching concept of "learning first and then teaching, and preparing teaching according to learning", and practiced the reform and innovation of learning-oriented classroom teaching mode supported by cloud teaching platform, with putting forward the learning-based classroom teaching mode of "four steps, three links and two feedback". From the above, the common ground of their classroom teaching reform is to adhere to student-centered conception, fully respect the main position of students, give full play to students' subjective initiative, and transform passive learning into active learning.

Jiang Yanling et al. believed that "Cone of Learning" was first put forward by American scholar Edgar Dale in 1946[1]; however, Chen Weiwei thought that the "Cone of Learning" is a "Learning Pyramid" put forward by the National Training Laboratory of the United States, which is translated into the "Cone of Learning" in China[2]. The "Cone of Experience" proposed by Edgar Dale in 1946 is not the same as the "Cone of Learning". Although there is no consensus on the proponents of the "Cone of Learning", it clearly shows the difference in the average retention rate of the content learned by different learning methods with numbers. Therefore, according to the research data of the National Training Laboratory in Maine, USA, we have concluded that the average retention rate of the student's learning content is more than 50 percent through discussion, practice doing, and teaching others, while it is less than 30 percent via lecture, reading, audiovisual, and presentation. Obviously, the learning effect of active learning is better than that of passive learning under certain circumstances.

## 2. Problem posing

Due to the different educational background, teaching environment and learning situation between China and the United States, there are some problems in the process of practice localization of the flipped classroom teaching model in China. According to our questionnaire survey and interview with front-line teachers, they generally think that the implementation of flipped classroom has increased the workload of teachers, but at present, with the unsatisfactory situation on the learning effect of students and the achievement of teachers' teaching goals, the problems that teachers worry about are that students' pre-class preview is insufficient and the tasks are not carried out, as well as the supervision of the learning process is difficult to control (as shown in Sheet 1). The most prominent problem is the poor initiative of students in pre-class learning and the inadequate curriculum participation in the class, which cause the phenomenon that the teachers have talked in the course of self-study knowledge before class, thus leading the low teaching efficiency. Yang Xiaohong et al. believed that how Chinese students who have been accustomed to passive learning adapt to the learning of flipped classroom is the first problem faced by the localization of flipped classroom[3]. Therefore, in the implementation of flipped classroom teaching, students' learning initiative directly affects the teaching effect of flipped classroom, so what are the factors that affect the initiative of flipped classroom learning?

Table 1 Problems Possible to Occur in the Flipped Classroom

Problems	Percentage
The supervision in the learning process is difficult to control	57.89%
Mobile terminals have been used in class for entertainment	47.37%
The preparation of students before class is insufficient	73.68%
The pre-class task of students is not implemented	78.95%
The distribution of break time is unreasonable	26.32%
The learning efficiency of students is not high enough	52.63%
Other problems	5.26%

## 3. Analysis of the Influencing Factors of Learning Initiative

### 3.1 Learning initiative

Learning initiative refers to a kind of behavior quality that learners can actively learn according to their own prescribed or set goals in the process of learning without relying on external forces. In the flipped classroom, the learning initiative of students is mainly manifested in three aspects, that is, the autonomous learning of students about the teaching resources given by teachers before class, the independent completion of the pre-class tasks, as well as the discovery of problems and the preliminary sorting of logical structure of knowledge; during the class, students should actively discuss with teachers and peers to solve pre-class problems via the cooperation between teachers and students to solve new tasks for further consolidating the key points, difficulties, examination points and wrong points; while after class, the students should summarize and improve the establishment of chapter knowledge map in time, and generalize the fragmentary knowledge into systematic knowledge.

### 3.2 The Expression about Lack of Learning Initiative

The flipped classroom insists on taking students as the center, reconstructing the active learning

environment for the students, embodying students' subjective status and giving full play to the learning initiative. However, the cramming teaching, which derives from the traditional classroom centered on "teacher", "textbook" and "knowledge", makes Chinese students accustomed to teacher-centered teaching and passively accept the ready-made knowledge. Zhu Zhiting et al. have pointed out that how to ensure the effect of "learning first" without the supervision of teachers before class is the problem of smoothly implementing the flipped classroom[4]. According to the reflection of the front-line teachers, there are the following aspects in the lack of learning initiative of the students in the flipped classroom. Firstly, the situation of teaching resources for study independently by students before class is relatively poor to finish. The following is the survey data of Class 3, Grade 1 of Deyang High School in Sichuan Province (the statistical deadline is November 30, 2018): there are 53 students in this class, and the flipped classroom teaching model was carried out in September 2018. Figure 1 shows the distribution map of students' completion rate of all tasks since the beginning of school, and we can see that a total of 28 students whose task completion rate is less than 60 percent. Secondly, the active participation of middle school students in the course is not very ideal, such as: the situation of cooperation and communication among groups, actively answering questions, and the expression of their own views. Thirdly, students can not complete the tasks assigned by the teacher in time.

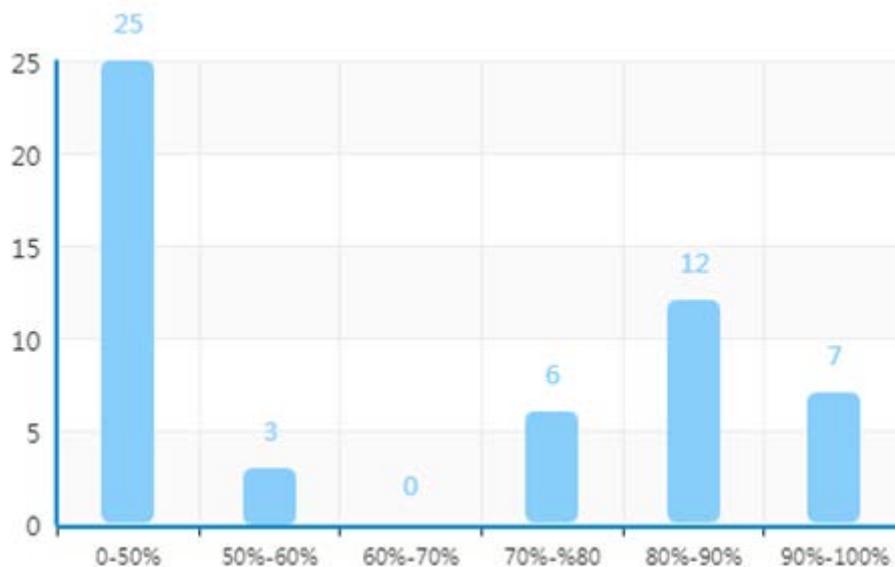


Fig.1 task completion rate distribution

### 3.3 An Analysis on the Influencing Factors of Learning Initiative

Tolman believed that the motivation of behavior is to expect something, or try to avoid something annoying[5]. The basic viewpoint of achievement motivation theory is that the achievement motivation is a general tendency to strive for success and choose activities towards the goal of success (or failure) (Slavin, 2003), which includes the conflict between striving to succeed and avoiding failure. Hence, the students will have some "attempt" and expectations in the course of the study. While what would they expect, from the surface, they want to get the grade improvement, the peers' approval, the teachers' praise, as well the parents' recognition, but from the deep analysis, they get the sense of satisfaction, achievement, pleasure and well-being in the study. On the contrary, when students encounter difficulties in the course of learning and have not realized the happiness and achievement of learning, then they will weaken the degree of effort and choose to avoid difficulties, which is a defense mechanism to protect the self-esteem[5]. Finally, the students' external behavior can show that whether the learning initiative is high or not.

Wang Cesan held that "the so-called teaching is a unified activity for teaching by teachers and learning by students"[6]. According to the philosophical viewpoint, the two sides of the contradiction are both opposed and unified with each other, that is, you can't learn without teaching, and you can't teach without learning. In the actual teaching process, the connection between

teaching and learning lies in knowledge with taking learning as the center, taking knowledge as the carrier and taking teaching as the means, then forming a special set of contradictions by teaching, learning and knowledge (shown in Figure 2), among which the contradiction and struggle between learning and knowledge are fiercest. Whether the knowledge is mastered or not is directly reflected in the teaching goal, while the goal is unified and the learning situation is diverse. Therefore, whether it is the traditional classroom or the flipped classroom, the most important thing is that the consistency of teaching objectives is difficult to balance the differences in students' learning levels, which can not meet the personalized learning needs of students, and then students will lack their interests and motivations in learning with showing the insufficient and low learning initiative. Hence, we come to the conclusion that the factors that affect learning initiative come from three aspects, namely, teaching, learning and knowledge.

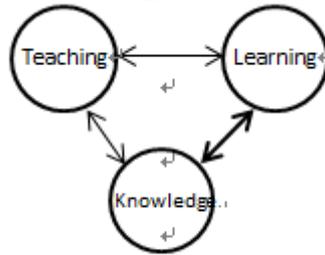


Fig.2 The Contradictory Relationship Between Teaching, Learning and Knowledge

### 3.3.1 Reasons from Teaching

1) The disconnection of flipped classroom is the key factor

It can be seen from the explicit form of flipped classroom that the partial flipped in the teaching process is the most obvious symbol, which mainly includes three links: self-study before class, inquiry in class and consolidation after class. Before class, students study curriculum resources independently and finish pre-class tasks; in the class, teachers and students focus on problem solving and task promotion; and after class, students further consolidate, expand and enhance their knowledge. In the stage of study independently before class, teachers do not put forward specific pre-class goals after assigning the curriculum resources, and the students without clear learning goals will naturally affect their self-study before class. According to a survey of students in Class 3, Grade 1 of high school, they think that 45.28 percent of the reasons that affect the learning initiative before class are "no clear pre-class learning goals". The effect of students' self-study before class will affect the internalization of class to a certain extent, so if teachers still use the flipped classroom, it will be difficult for students to adapt to learning activities in the class. Finally, there is a strange phenomenon that the students only try to cope with the students' self-study before class, and the teachers still use the method of lecture in the class. This kind of flipped is not only a waste of human and financial resources, but also can not achieve the desired results. On the whole, there is a serious disconnection among the three links — before class, during the class and after class, while from a partial viewpoint, there is also disconnection within each link because of the unclear goal of the knowledge learned before class, the lack of systematic organization of activities in class, and no follow-up to the promotion after class. Therefore, the disconnection among or within the links of self-study before class, inquiry in the class and consolidation after class is the key factor that restricts the teaching effect of flipped classroom and affects the learning initiative.

2) The absence of a change in roles is a major factor

In the actual flipped teaching, on the one hand, teachers dare not carry out the flipped classroom because the teachers worry too much about that students can not master the knowledge points, dare not let the students learn by themselves, and still mainly adopt the method of lecture by teachers. On the other hand, due to the lack of effective process supervision and guidance to students, teachers are too let students go to fail to reverse. Therefore, in the flipped classroom, teachers need to clearly know their own role positioning which is important that what role should teachers play in different links, especially in the matters of speaking or not, managing or not, guiding or not, as well

as teaching or not.

### 3) Lack of design in teaching is a direct factor

According to the corresponding teaching theory, communication theory and system theory, Teaching design is a process to determine teaching objectives, develop teaching resources, select teaching media, establish a strategic plan for teaching problems solving, implement, evaluate and constantly modify the plan on the basis of analyzing learners, learning needs and teaching contents. Flipped classroom pays attention to individualized learning, and it believes that students with different learning styles have different learning needs. First, teachers lack a comprehensive analysis of the situation of learners, and the pre-class learning resources are single which can not meet the personalized learning needs of different students; second, teachers are short of the reasonable screening and effective integration of learning resources, which is only a simple accumulation of resources; third, the classroom learning activities designed by teachers are relatively simplex in form and fail to fully reflect the spirit of group cooperation. 79.25 percent of the students in the questionnaire survey believe that, "various forms of learning activities in the class" can improve their learning initiative in the flipped classroom; and fourth, teachers do not take into account the three links — before class, during the class and after class — in the whole teaching design and lack the systematic view of teaching design thought. Generally speaking, teaching design is a direct factor that affects the learning initiative of students in the flipped classroom.

### 3.3.2 Reasons from Learning

#### 1) There is too much difference in learning ability

Every student in each class has a different foundation with good or bad grades, great or poor understanding, as well as high or low comprehensive quality, which are all normal phenomena. However, in the flipped classroom, if the level of the students in the class is too different, the students with high comprehensive quality will show strong learning initiative before class, during the class and after class. However, the students with low comprehensive quality will be hit quite hard, and their learning initiative will become weaker and weaker, and then they will enter a vicious circle and even become tired of learning, which will seriously affect the all-round development of students and the balanced development of the whole class. Because there is a great difference on learning level among students, this also brings the difficult problem for the teacher to set the reasonable teaching starting point. Students' original experience is not enough.

The so-called meaningful learning, Ausubel believed that it is to establish a non-artificial and substantive relationship between the new knowledge represented by symbols and the appropriate concepts existing in learners' cognitive structure[7]. The generation of meaningful learning is related to learning materials and learners' own factors. If the learning material itself has logical meaning, but the original experience in the learners' cognitive structure is insufficient, this may affect the learners to actively connect the new knowledge with the original knowledge, so that it can not constitute meaningful learning, and will cause mechanical learning instead. Therefore, whether in the process of study independently before class or in the process of internalization in class, students will be more difficult for learning, so that they can not find happiness from learning, and in this case, how to talk about learning initiative? 56.6 percent of the students in the questionnaire believe that "failure to understand the pre-class knowledge" will affect the learning initiative in the class, while 58.49 percent of the students think that "self-review and consolidation of learned points" can improve their learning initiative in the flipped classroom. Thus it can be seen that the original experience of students has a great impact on learning initiative.

#### 2) Students are used to passive learning

The flipped classroom focuses on the cultivation of the students' self-learning ability and the development of cooperative learning consciousness, which calls for the full mobilization of the students' learning initiative so as to make them be the master of study. In the long run, this is beneficial to the cultivation of the country's innovative talents . Yang Xiaohong et al. thought that, for a long time, the classroom teaching of our country has generally adopted the indoctrination teaching which emphasizes the imparting of basic knowledge[3]. From elementary school, middle

school, high school to university, the students in our country have become accustomed to the passive acceptance study, and the accepted mode of thinking and the lack of self-learning ability are difficult to change in the short term.

### 3.3.3 Reasons from Knowledge

#### 1) Not all knowledge is good for flipping

The schools, which have implemented the flipped classroom teaching model, are generally teaching with the help of a learning platform that teachers only need to choose learning resources, assign the corresponding pre-class tasks, and students can study independently before class. However, whether these resources are really suitable for their own students and whether this knowledge is really fit for students' self-study before class is worthy of in-depth thinking by teachers. It is necessary for teachers to carefully study the teaching content and devote themselves to analyzing the situation of students, and then determine which materials and knowledge points are suitable for students' self-study before class, and which knowledge points must be explained by teachers in class. The flipped classroom is not fit for all subjects, and not suitable for all chapters of the subjects. 43.4 percent of the students believe that that "failure to understand the pre-class learning resources" will affect the learning initiative before class.

#### 2) The unreasonable difficulty of the task has become the first hurdle

Vygotsky believed that there are two levels of students' development, one is the existing level, the other is the potential level, while the difference between these two is the zone of proximal development. The starting point of teaching should be set in the zone of proximal development so as to effectively stimulate students' learning initiative. However, it is difficult for teachers to take care of each student because of the differences among students in the class. The difficulty is either lower than the current level of students, and students may feel that it is too simple to meet the expected teaching ideas; or higher than the potential level of students, students may find it too difficult to complete, which will affect the internalization in the class. According to the results of the questionnaire survey, 41.51 percent of the students think that the test before class is a bit difficult, and 43.4 percent of the students hold that "providing some moderately difficult tests" can improve their learning initiative in the flipped classroom.

## 4. Conclusion

Flipped classroom is a kind of teaching mode. Platform, micro-video and flat panel are just tools to realize the flipped teaching. The core of flipped classroom is to change students' learning consciousness. The purpose of flipped classroom is to optimize teaching process, improve teaching effect, cultivate students' comprehensive practical ability and promote students' independent learning. It is hoped that the majority of educators will understand the essence of flipped classroom teaching, insist on taking students as the starting point and destination of teaching reform, deeply analyze the factors affecting students' learning initiative, put forward corresponding solutions, and explore a practical and self-featured way of flipped classroom teaching.

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