

## Research on Resource-driven Flipped Classroom Teaching Model

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**Abstract.** Recent with the progress of Information Technology and calls for educational reform, research and development of Flipped Classroom become current hot spot. But there are many factors influencing the effectiveness and efficiency of this model. In this paper we provide a resource driven teaching model for the flipped classroom through analysis and descriptions of the values and the challenges. We also design learning activities and process under this kind of learning environment.

### Connotation and Values of Flipped Classroom

**Connotations of Flipped Classroom.** Flipped classroom, also known as Inverted classroom, turns the class room into a place where to solve the problem and research cooperatively for teachers and students, rather than taking up limited class time for a teacher to introduce a concept face-to-face via lecture. The teacher can create a video lecture, screen cast, or podcast that teaches students the concept, freeing up precious class time for more engaging and collaborative learning activities typically facilitated by the teacher.

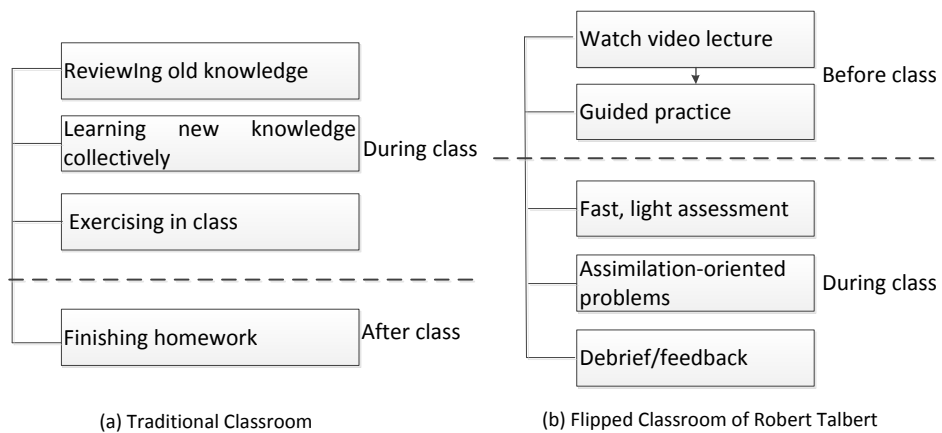


Figure 1. Structure Models of Traditional Classroom and Flipped Classroom

Flipped classroom subverts the structure model of traditional teaching (As shown in Fig. 1(a)) and reconstruct a new classroom teaching model (As shown in Fig. 1(b)[10]). The new structure fully stimulates the individual's initiative, makes teaching activities become students-centered.

**Characteristics of Flipped Classroom.** Compared with the traditional classroom, the flipped classroom has many outstanding features. Table 1 lists the comparison of the elements of the flipped classroom and the traditional classroom.

Table 1 Contrast between key elements of traditional classroom and flipped classroom

Elements	Traditional Classroom	Flipped Classroom
Teachers	knowledge providers	facilitators promoters
Students	passive knowledge receivers	active knowledge inquirers
Teaching forms	classroom instruction homework assignments	deep learning before class knowledge internalization in classroom
Teaching contents	textbook	information resources
Technology application	content presentation	autonomous learning exchanging and reflecting collaborative discussing individualized learning
value center	knowledge acquisition	the cultivation of the higher order ability
Evaluation methods	the single result evaluation	multidimensional evaluation from multiple perspectives

### Values of Flipped Classroom and Challenges for Flipped Classroom

**Values of Flipped Classroom** (1) promoting the individualized learning and the inquiry learning

In the flipping classroom model, before class, and after class, students can according to their own situation, set their own pace of study, without having to catch the fast pace of students or wait for the slow pace of students, the real implementation of the hierarchical learning in. Students encounter difficulties and doubts, to get targeted guidance, teachers can also according to the different arrangement of different students of different tasks, truly personalized learning, and cultivating excellent makeup, individualized.

(2) Improving the higher-order thinking ability of learners

The flipped classroom encourages learners to carry out the self construction of knowledge, to actively explore ways to solve the problem, and through the classroom and teachers' discussion and exchange, so that learning to become more meaningful activities. In the understanding of knowledge and transform it into the process of personal knowledge, learning to learn, and gradually develop self-study, questioning, communication, teamwork, analysis and solve the problem of higher order thinking skills, acquire skills and literacy of sustainable development.

(3) Expanding and extending the classroom space of teaching

In traditional teaching, most of the time in the classroom is the teacher, and the students are listening to the teacher. In the flipped classroom, students need to spend time learning to speak in the classroom teachers' original knowledge before class, most class time is used to exchange interaction and operation guidance, more depth study, and the traditional classroom teaching is a kind of spatial expansion and extension.

**Challenges for Flipped Classroom.** (1) Higher requirements to students

After watching the video outside class, students complete the pre-class practice, find information on the Internet, and then summarize the problems in the classroom; teachers and classmates to discuss these activities, the successful completion of the Chengdu students have strong self-learning ability and inquiry ability. However, Chinese students are often used to accept knowledge instead of exploring knowledge; independent thinking ability is poor, in the study in a state of numbness.

(2) Higher requirements to teachers

The concept of teacher education and the theoretical level but also through a baptism, in the teaching must firmly establish the student-centered education concept, the diversity of students, focus on

teaching, and arouse students' enthusiasm and inquiry. Teachers need to learn new concepts and new techniques, record instructional videos, design classroom activities, and guide students to communicate.

(3) Higher requirements to instructional resources

In the flipped classroom teaching mode, the teaching video is the main support of knowledge transfer, the video quality is directly related to the quality of students' learning.

Vivid, visual, instructive and creative teaching video can stimulate students' thinking. Although teachers can make use of the excellent teaching resources of the network, however, more teachers need to make teaching video according to the actual situation of their students. Making a high level, high quality teaching video and teaching cases has become the key to the implementation of the flipped classroom teaching mode.

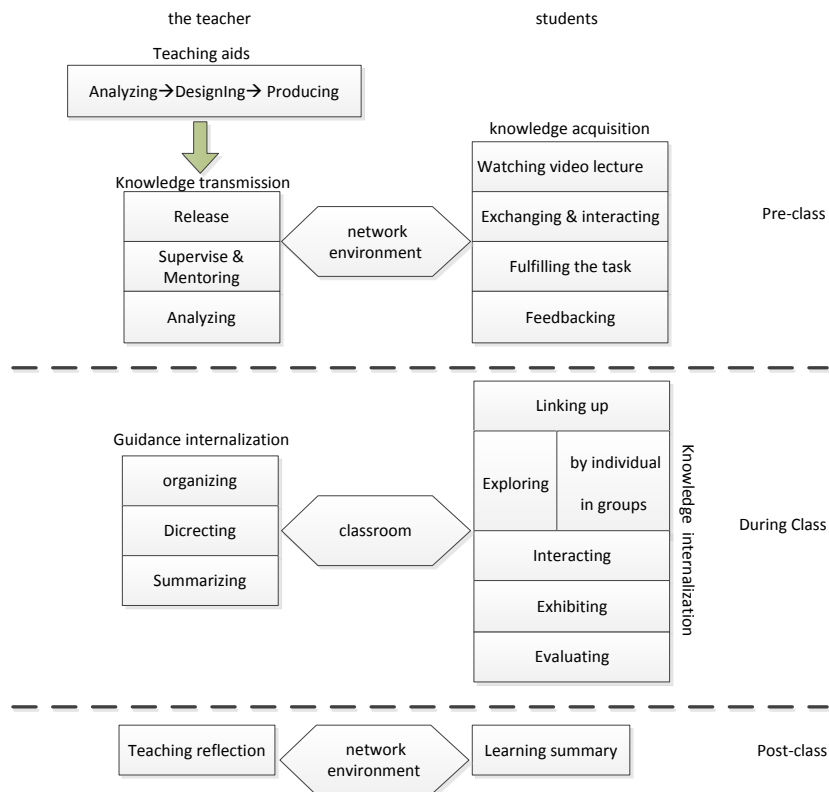


Figure 2. Resource-driven Flipped Classroom Teaching Model

**Construction of the Resource-driven Flipped Classroom Teaching Model**

**The Design of Resource-driven Flipped Classroom Teaching Model.** Therefore, a new flipped classroom teaching model is constructed based on system structure model of Professor Talbert’s flipped classroom from the idea of “Flipped Classroom takes the student as the center and focus on students' individualized and comprehensive development” [3] absorbing the notion of “the flipped classroom creates free learning space for learners and builds a personalized learning environment” [4]. The resource-driven flipped classroom teaching model is shown as Fig. 2.

**The Design of Teaching and Learning Resources.** High quality teaching resources are an important part of effective learning. Flipped Classroom restructures a large number of high-quality education resources and learning activities once more and changes the procedure of knowledge transference and internalization through reversing the teaching process and learning activities. The design of learning resources is divided into the design of autonomous learning resources, the design of classroom teaching resources and the design of expanding learning resources according to the purposes. Network teaching resources include text, pictures, animation, video etc among which micro video is the major carrier for learning resources in the flipped classroom.

**The Design of Learning Activities.** It's easy to flip a classroom applying the case teaching method, task-driven teaching method and project teaching method through web-based teaching platform and tools assisting network instruction. Teaching process is divided into pre-class, during-class and post-class three stages according to the time sequence in the flipped classroom model of resource driven as well as taking the teachers and the students activities as the main line respectively. The teacher activities include teaching preparation, knowledge transfer, guidance internalization and teaching reflection while student activities include knowledge acquisition, knowledge internalization and learning summary, etc. Teachers transfer knowledge and students acquire knowledge under the environment of network.

## Conclusion

In conclusion, in the flipped classroom teaching content is offloaded for students to learn on their own, the class is focus on engaging students in student-centered learning activities such as inquiry-oriented learning and problem-based learning. As a result of this research, one can see that the flipped class model has a positive future in college education.

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