

A STUDY ABOUT FLIPPED CLASSROOM TEACHING SUPPORT SYSTEM DESIGN

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ABSTRACT

Flipping Classroom has begun to flourish worldwide as a new teaching model. The implementation of flipped classroom includes the design of well-made video before class and learning activities design in class and so on, in which the support of network teaching system is necessary. Based on the investigation of the general teaching model of flipped classroom, the flipped classroom supports system design was studied on the interface style, system functions, running processes, etc.

Keywords: Flip classroom, Teaching support system, Software system design.

INTRODUCTION

Flipped classroom has become popular worldwide as a new form of teaching. Compared with traditional teaching, it breaks through the traditional classroom limitations, reconstructs the teaching structure, reflect the advantages of the new teaching ideas. The implementation of flipping the classroom includes pre-class well-made video design and other aspects, in which the support of network teaching system is necessary. Pre-class learning in flipped classroom is primarily carried out through a network of micro-teaching. At the same time, extracurricular learning support is also web-based teaching system.

THE MEANING AND THE GENERAL PATTERN OF FLIPPING THE CLASSROOM Connotation of flipped classroom

Inverted classroom, also known as the Flipped Classroom, is to flip over the traditional classroom teaching structure. Students adopt autonomous learning by watch video of teaching materials after class and finish the homework questions, or carry out the project practice, collaborative learning and the deep research and other activities way to learn under the guidance of teachers in class [2]. Flipped classroom originated in American Woodland Park High School. Two chemistry teachers, Jonathan Bergman and Aaron Sam, found in the practice of teaching what the students need most is not the teachers' explanation on the knowledge and skills in the traditional classroom, but to be timely and effective help when they encounter problems. However the teachers are often not in the problem locale [3]. From the year 2007, they provide students with teaching video and courseware. Students independently arrange learning before class. The teacher organizes to communicate in-depth and provide personalized guidance in class. Flipped classrooms regard constructivism and mastery learning theory as the instruction and take the modern education technology as the basis. It makes the real implementation which is from the transformation of Teacher-centered to student-centered, and makes the students from passive recipients of knowledge transform into active searcher for knowledge .Two key points to realize the flipped classroom optimal effect: one is that deep study is going on really after class, the another is that classroom time

is efficiently utilized to communicate about learning experience for helping to deepen the cognition [1].

The general pattern used in the classroom teaching by flipped classroom

The implementation of flipped classroom teaching in general, includes the self-study before class, internal training in class, after-school strengthens and promotion these three interconnected teaching links [2]. As shown in Fig. 1.

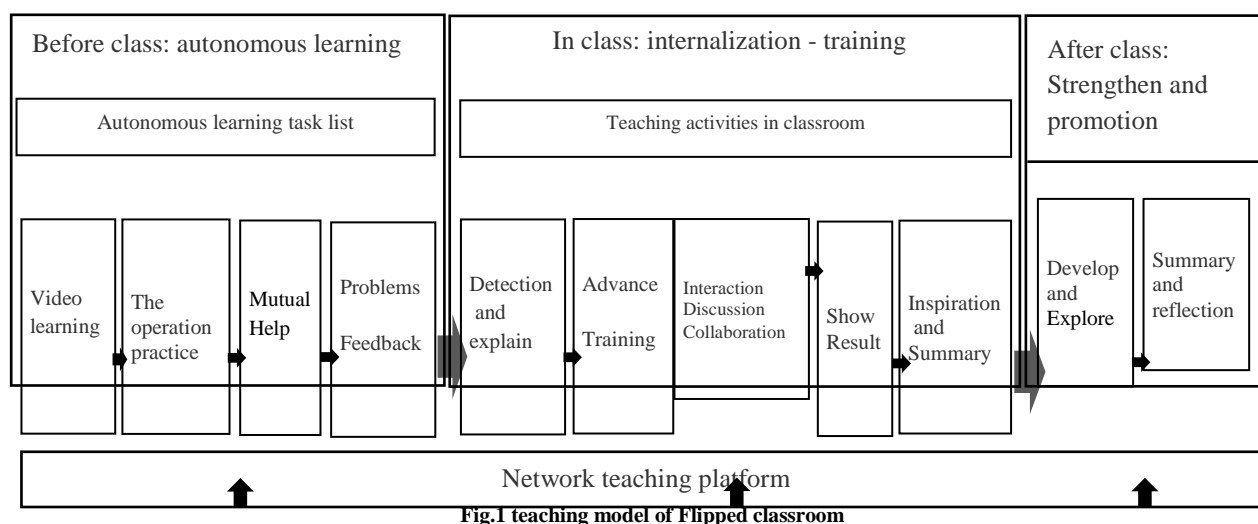


Fig.1 teaching model of Flipped classroom

Seen from Figure 1, compared with traditional teaching, flipped classroom teaching broke through time and space, has the in-class activities arranged to be extracurricular. However, learning occurs in extracurricular activities, does not mean that the teachers and classroom teaching totally separated. These activities are closely combined with classroom activities, mutual support, and the successful completion of these activities depends on the support of teachers and peers. And a full-featured, easy to operate network teaching system will play an important role in harmonizing the former class, class and after-school teaching.

FLIPPED CLASSROOM SUPPORT SYSTEM DESIGN

Interface Design

The interface design of instructional support system should adopt the flat design style, which is simple, elegant, clean and orderly arranged, navigation-clear. Pages with bright colors are easy to create a relaxed, pleasant visual experience ^[3].

System functional structure design

Functional modules of the system includes the information center, the task center, micro-video center, learning center, resource center, individual center and backstage management center, etc.^[4] The specific functional design is shown below Fig.2.

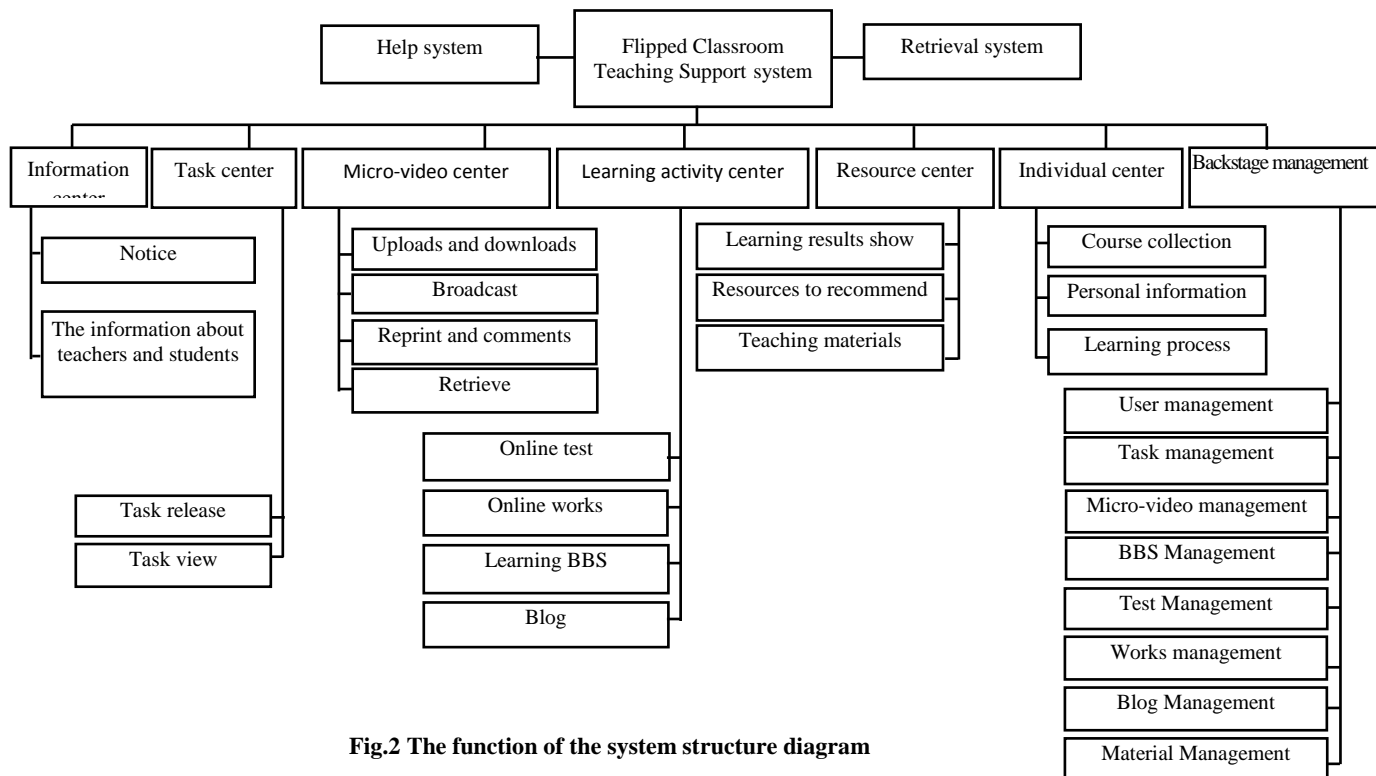


Fig.2 The function of the system structure diagram

Help system mainly includes system instructions, resource upload specification, message boards and forums instructions for use, etc. while providing the system message boards, supporting anonymous message, answering the difficult problems of the users. Help system helps users to operate and apply the system efficiently.

Information Center provides information release and push of the whole system, primarily including teaching bulletin, such as upcoming event reminders, recent teaching activities, resource updates and so on. At the same time, provides the basic information of the teachers and students in this class.

The task center is mainly to publish courses task according to which the students carry out their self-study before class. Micro Video Center is to support the most important learning resources provided by the system. Classify the video resources According to the curriculum themes, ensure each course of micro-video corresponding with teaching theme , which helps users to quickly locate relevant curriculum resources. Users can play online video to learn, you can also leave a message, comments and forwarding for the video.

Learning activities center mainly includes the test on student’s self-learning before class, on-line tasks in-class and after-school, writing learning reflective journal and learning forum. Forum offers the students communicating system, forum board classification sync with the theme of teaching, when the task Center released a new task, new posts are directly built in the corresponding section of the forum for students’ targeted exchanges and discussions. Meanwhile, the forum can be achieved to bind with QQ accounts, personal speech information can be synchronized broadcast on Tencent Weibo. Registered teacher users can apply to the administrator for newly building the curriculum discussion board according to the teaching demands, in order that teachers have the right to review, delete the discussion contents of the inner pages.

Resource Center supports all users' resource query, browse, download, and registered users' upload, subscriptions, favorites, recommendation and evaluation function, at the same time, by setting the registered user's roles; it achieves the personalized resources push function for registered users. Resource Development adopted the concept of co-construction and sharing, and all resources are dynamically generated along with the promoting of the teaching, which mainly includes three aspects. Learning outcomes, after flipping study, each student / group will have learning outcomes, all the results are to be published in the system for teachers and students to review. The center supports the expansive exploration of resources. Teachers and students can recommend their own resources out. In terms of the teaching resources, teachers can release related lesson plans, courseware, cases, exercises, etc.

Personal center is personal learning environment built for each learner by system. You can view your own quiz submission, exercises, assignments, completed learning outcomes, participating discussions, it's easy to learn self-examination and self-assessment.

Manage module can manage all resources generated by the system, the forum, the system registered users , and achieve registered users' network learning behavior statistics, including registered users online duration, posting frequency, log publish, resource upload and download frequency, etc. and presented to the administrator in the form of a report .

System running processes

According to functional design above, teachers release teaching notice, layout learning tasks, publish self-study materials before class, including learning task orders, micro video and so on. At the same time they should always pay attention to students' self-study feedback after receiving learning tasks, mastery learning situation, help students solve problems through forums, guestbook, etc. And prepare well for the class. After learning a subject, make a comprehensive evaluation of student learning and provide support services for students to expand exploration according to network statistics. As shown in Fig.3.

Students obtained teaching information before class through the system, to understand the learning task, get self-learning resources and, if have doubts in learning they can have exchange and discussion through online forums, message, complete online tests and exercises before class, and submit self-study feedback before class. After the classroom learning, students need publish their own learning outcomes on the system, participate in self-assessment and peer-assessment of the learning outcomes, share learning resources, and write reflection logs, etc. As shown in Fig.4.

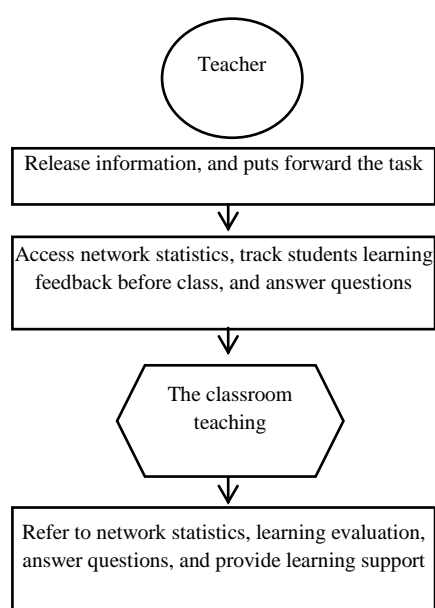


Fig.3 Teaching process

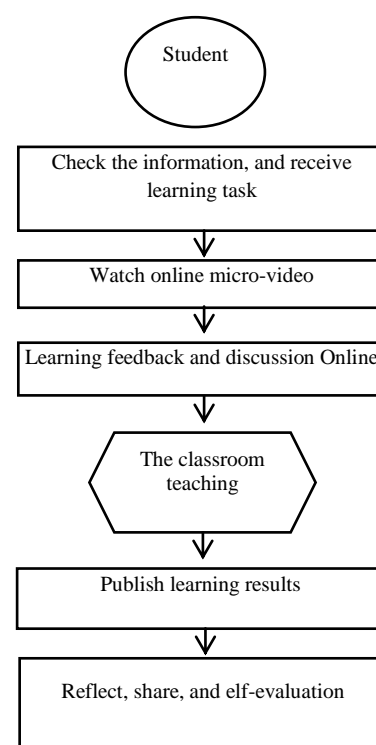


Fig.4 Learning process

CONCLUSION

This study is based on the general model of the flipped classroom implementation, having designed the interface style, system functions, running processes of the flipped classroom support system. The interface style adopts a flat design, followed by fashion trends. System features design meets the teaching requirements, is functional well-planned and practical. Operational process design is closely integrated with the implementation link of teaching, so seamless, maximizing the teaching support utility.

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