Are you Ready to Flip?

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Abstract. Flipped classroom has become very popular in both primary and higher education. Though promoted by Jonathan Bergmann and Aaron Sams, this teaching mode is not quite new. This paper tries to evaluate the flipped classroom by first retrospecting the brief history and summarizing the advantages. Then the reasons for implementing flipped classroom in higher education are analyzed, and the challenges raised are discussed. Finally, this paper points out that to flip the class is not just an action, which has deeper meaning.

Introduction

Brief history of flipped classroom

Teachers in Woodland Park High School in Colorado used to be bothered by students failing to catch up with the courses for various reasons. In 2007, Jonathan Bergmann and Aaron Sams, who are considered as the pioneers in the “Flipped Class Movement”, began recording the PowerPoint presentation and interpretation with screen capture software. At first they uploaded the videos to the Internet to help those who were absent from the class. Then they gradually had the students watch the videos at home and do exercises or projects in the classroom under supervision, flipping the traditional teaching mode, i.e. lectures in school and homework at home. Among students, their online videos became so popular that the server often collapsed during 18 PM to 22 PM every night, because too many students downloaded videos. Their teaching practice drew a lot of attention. More and more teachers adopted this kind of teaching mode.

But flipped classroom is not a new concept; it has existed for years in different forms. Before the digital era, many teachers had tried to give reading assignments before class, and then they launched group discussion, quizzes or case studies [1]. In 2000, Professor Maureen introduced their “inverted classroom” in Economics teaching in Miami University [2]. At that time they did not put forward the term as “flipped classroom”. In the same year, Dr. Baker, published an article—The “Classroom Flip”: Using Web Course Management Tools to Become the Guide by the Side—in the 11th International Conference on College Teaching and Learning. The word “Flip” came into the educators’ sight. But these papers did not draw much attention. Until 2007, Jonathan Bergmann and Aaron Sams extensively used the “flipped classroom” teaching mode, promoting the Flipped Class Movement in K12 education. In 2012, they started Flipped Learning NetworkTM (FLN) to provide educators with the knowledge, skills, and resources to successfully implement the Flipped Learning model. Another successful example is Khan Academy, a non-profit educational organization created by Salman Khan, providing a personalized learning dashboard, over 6,000 micro lectures, and over 100,000 practice problems. Many teachers practicing the flipped classroom relied on its abundant video resources which cover math, history, physics, chemistry, biology, astronomy, finance, computer science, and other subjects. The popularization of flipped classroom depends heavily on the development of digital technologies, such as You Tube, Pod casts, Edmodo, and other internet-based services.
Advantages of flipped classroom

Compared with traditional teaching, flipped classroom has many advantages.

1. Flexible learning environment. Contrary to traditional classroom with fixed seating, flipped classroom has no boundaries. Anyone can use any device to learn at anytime and anywhere. When teachers perform didactic teaching in traditional classroom, the students must concentrate all the time to follow what the teacher imparted. But it is very difficult for the student to pay great attention for the whole class time. If they are distracted, they will not keep up with the pace of teaching. While in flipped classroom, the students can choose when and where to watch the contents videos, and keep their own pace to study. When the content is easy for them, they can move on without any hesitation. When the content is difficult to understand, they can rewind the record, think thoroughly, or even ask for help to teachers or classmates by communication platforms.

2. Active learning. In traditional learning the teacher delivers knowledge to the students in the class, while the students get busy with listening to the teacher and writing down notes. Most of the students’ activities are recognizing, understanding, defining, remembering, describing, comparing, etc. These activities are lower level of learning in Bloom’s taxonomy. While in the technology enhanced flipped classrooms, the students are more engaged in their learning, shifting from the teacher-centered classroom to learner-centered one. Before class, they must watch the videos or other resources and accomplish lower level of learning activities. In class, they will have group-based assignments or whole-class brain-storming activities with the supervision of the teacher. Higher level of learning activities such as analyzing, organizing, solving, constructing, compiling, and creating and so on are often involved. Flipped classroom enables both higher and lower levels of cognitive work. Through team-based learning, peer instruction or problem-based learning, the students will develop critical thinking skills as an expert. In higher education, critical thinking skills are even more important than the content itself. Through flipped classroom the students can develop independent learning ability by watching instructional videos or materials, develop collaborative learning ability by conducting group discussion or teamwork, develop expression and communication skills by presentation or debating, and develop the ability of generating new knowledge over existing knowledge by accomplishing complex projects or self-reflection.

3. More interactive. Since there is no communication between the students and the teacher when they watch videos alone at home, some people may argue that the transactional distance becomes higher. It is true to some extent, but the teacher could minimize the transactional distance by applying more interactive learning activities. Before class, the teacher meticulously selects teaching contents and makes videos to stimulate the students’ interest in learning by thoughtful course design. Even if the teacher is not present when the students watch videos outside class, the teacher could set some quizzes to testify whether the students have grasped the meaning of the content. Inside the class, the students interact with each other by group discussion or teamwork, which will practice their expression and debating skills, thus cultivating the collaborative learning ability. More importantly, the teacher has more time to spend with the students in class time. Apart from giving feedbacks, the teacher can observe the students’ performance during the discussion or project, perceiving the difficulties or learning styles of the students. This will help the teacher to tutor individual student with personal guidance to explore the student’s potentiality.

The trend of applying flipped classroom in higher education

Today, flipped classroom has become very popular in primary and secondary education and has won warm applause. How about its application in higher education then? In the professional journals, there are many case reports about flipped classrooms covering STEM (science, technology, engineering, mathematics, and medicine) courses in higher education [3-6]. It seems to be a trend to apply flipped classroom in higher education. From the view of the students and the essence of higher education, there are two main reasons.
Digital natives. Marc Prensky put forward “digital natives” and “digital immigrants” in 2001. Our students were born after the ubiquitous introduction of digital technologies and brought up in the prevalent social media environment. Textbooks or classrooms are no longer their only choices. They tend to get immediate news or scientific developments through YouTube, Facebook, Twitter, and etc. They prefer a more relaxed, more flexible, and more collaborative learning environment, which flipped classroom can provide.

Positive learning experience. In lectured-based teaching, the students cultivate a passive learning habit, where learning requires less proactive efforts. The students tend to sit in the chair, listen to the teacher, write down the notes and memorize what the teacher said. As a student, the most important is not what content he receives from the teacher, but the skills in critical thinking. In technology enhanced student-centered learning, the students have more active learning activities by team works, debates, or case studies. Through these activities, the students will achieve information literacy and critical thinking skills, which are more important in higher education.

No doubt, flipped classroom will spread widely in higher education. Teachers will face unprecedented challenges. In flipped classrooms, teachers are not replaced by the instructional videos. On the contrary, they will play more important roles than in the traditional classroom. Giving lectures are no longer the most time-consuming job. Teachers should make good use of the spare time, balancing the time for lecturing and tutoring. A teacher may be an expert in his own special field, but he may be not familiar with the new educational technology or social media. He might have got used to the traditional teaching. He is not sure about how to make video resources, how to allocate the time, how to create a “student-centered” learning atmosphere, how to inspire the students’ motivation and so on. Lack of adequate qualified digital resources is another big problem. Pre-class instructional contents are not just the recorded lecturing videos. Jonathan Bergmann and Aaron Sams once said, “Boring lectures are bad, but boring lectures on a video can be even worse” [7]. Not all teachers can make their own digital videos. Fortunately, there are some valuable video resources on the internet, such as Khan Academy, Bozeman science, etc. But, teachers must meticulously select and evaluate the learning contents. So the teacher is not only required to master professional knowledge, but also the modern education technology.

To flip the class is not just an action

The core tenet of flipped classroom is that the teacher imparts knowledge to the students outside the classroom and recruits students actively participating in knowledge construction inside the classroom. But, to flip the class is not just an action to reverse what is traditionally done in class with what is traditionally done as homework. By flipped learning model, the teacher wants to stimulate and challenge the students’ critical thinking, to guide them in solving problems and to encourage their application of knowledge. After several years of development, the word “FLIP” has been endowed with deeper meanings, i.e., Flexible environment, Learning culture, Intentional content and Professional educators, which constitute the four pillars of flipped learning [8]. Chen et al appended three additional components to form the “FLIPPED” mode, which were Progressive networking learning activities, engaging and effective learning experiences, and Diversified and seamless learning platforms [9] (Chen, 2014). They think that these additional components are more suitable for a higher education context.

Summary

Nowadays people are immersed in overwhelming knowledge or information, so the skills of information literacy and critical thinking are especially vital in higher education. A student must master the ability of learning by oneself and generate new knowledge over existing knowledge. Flipped classroom can provide both lower level and higher level of learning activities, facilitating the students to develop these capabilities. But “flipped classroom” is not the ultimate goal in education; it is just a developing mode for powerful learning. There are both advantages and challenges in
performing flipped classroom. As a teacher, one should not be inert at changing with the new technology. More efforts should be given to prepare for one’s flipping right.

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References


