The Evolution and Impact of the Flipped Classroom Model in Modern Education

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Abstract:

This research paper explains mostly about the term flipped classroom. It is a new teaching method that makes a big difference for teachers and students. In this paper, the researcher also discussed the actual cases of flipped classrooms has been used by nowadays' schools. What's more, this paper also talks deeply about the three main changes after introducing the flipped classroom to real class, listed as teachers' role transformation, students' role transformation and classroom time reallocation.

Keywords: Flipped Classroom; Education practice; Educational Evolution.

1. Introduction

In recent years, the term "flipped" has become popular in the education field worldwide. Several related terms have emerged, such as flipped classroom, flipped instruction, flipped learning, and flipped curriculum. The emergence of these terms, along with numerous related studies and practices, reflects that the "flipped" education concept, represented by the "flipped classroom," is being implemented internationally, showcasing a new trend in educational technology that supports teaching and learning (Westermann, 2014).

The flipped classroom, also known as the inverted classroom, has a similar meaning but a different origin. For example, some people define the "inverted classroom" as "a classroom where events that normally happen in class now happen outside of class, and vice versa." Other researchers have similarly defined the "flipped classroom." In traditional teaching, teachers typically present content in class, assigning homework to reinforce understanding. In contrast, in the flipped classroom model, classroom teaching and homework are reversed. Teachers record lessons in advance and upload them online, allowing students to watch lectures at home in preparation for in-class activities (Long et al., 2017).

While there is not complete consensus in the academic field on the exact definition of a "flipped classroom," it is generally agreed that it includes two components: interactive group-based learning activities in class and personalized computer-based learning outside of class (Swithenbank & DeNucci, 2014). One theoretical basis for the flipped classroom model is active learning, built on the following principles: (1) active learners: students take responsibility for their own learning; (2) interactive teaching: learning occurs through social interactions with peers and teachers; and (3) anchored teaching: knowledge is applied to complex, real-world scenarios (Cardullo et al., 2017). Another theoretical foundation is Bloom's Taxonomy. Students engage in lower-order cognitive tasks, such as understanding and familiarization, at home. In class, they focus on higher-order tasks (e.g., application, analysis, and evaluation) with peer and teacher interaction. The flipped classroom model's focus on in-class, group-based interactive learning also aligns with Peer-Assisted Learning and Collabo-

rative Learning theories (Munir et al., 2018).

Based on this discussion, we believe that the flipped classroom model incorporates theories such as active learning, peer-assisted learning, cooperative learning, and problem-based learning while also integrating blended learning design and curriculum podcasts. The value of flipped classrooms lies in transforming class time into a workshop where students can explore content, apply knowledge, and engage in hands-on activities. In this setting, the teacher acts as a mentor or guide, encouraging students to pursue independent exploration or cooperative learning (Chen & Chang, 2017).

2. Research Method

This study conducted a literature review to understand flipped classrooms better. Keywords were searched on Google and Chinese search engines to collect literature on flipped classrooms. First, background information was gathered on how flipped classrooms originated and who introduced this innovative idea. Secondly, documents describing real-world implementations were collected, illustrating what teachers and students do in flipped classrooms. More importantly, extensive literature searches helped clarify the role shifts for students and teachers in flipped classrooms.

The initial search round covered the theoretical basis and concepts of flipped classrooms, their development, and educators' perspectives. Representative literature was selected to clarify each aspect. In the second search round, we focused on practical research, specifically on terms like "practice," "intervention," "projects," "programs," and "classrooms," to pinpoint articles focusing on flipped classroom practices. We excluded theoretical-only articles, historical studies, theoretical-only practical effects, and comparative studies. This round concentrated on existing flipped classroom research to uncover specific practical strategies.

In close readings of select literature, we examined subjects, fields, grades, practice effects, student numbers, and specific strategies. After this round, the information was categorized and integrated. Throughout, we centered on key issues: how flipped classrooms facilitate teacher role transformation, changes in student roles, and classroom time reallocation.

3. Conclusion

3.1 Teacher Role Transformation

The flipped classroom enables teachers to shift from knowledge transmitters in traditional settings to learning facilitators. This means that teachers are no longer the central source of knowledge interaction and application; however, they remain key supporters of students' learning. When students need help, teachers provide appropriate support, becoming resources that help students access, use, and apply information to real situations. This shift in role challenges teachers to develop new teaching skills (Altemueller & Lindquist, 2017). In the flipped classroom, students are at the center of the learning process, constructing knowledge through real tasks and participatory activities. To reach this goal, teachers must adopt new teaching strategies that encourage learning without limiting students' choices. Through designing engaging activities, teachers foster student growth and development (Ray & Powell, 2015). After completing a study unit, teachers assess students' knowledge and provide timely feedback to help them track their progress. This timely evaluation allows teachers to adjust classroom activities to support learning effectively (Bye, 2017).

In flipped classrooms, teachers are expected to prepare more in-class activities and find or create teaching materials for students. Some teachers, however, have noted the difficulty in locating high-quality video resources online, and creating videos can demand significant time, adding to their workload (Graziano, 2017). The additional preparation required for creating engaging, interactive materials is a common challenge, with teachers indicating that managing the increased workload associated with flipped learning can be taxing (Rahman et al., 2018).

3.2 Student Role Transformation

With technological advancements, education has entered a new era, where students can expand their knowledge independently. Educators can use technological tools like wikis and blogs to efficiently provide rich educational resources, and students can access necessary knowledge from online resources (Wells & Holland, 2016). In technology-supported personalized learning, students become self-paced learners, controlling the time, place, content, and workload. However, in flipped classrooms, learning is not entirely independent. The flipped classroom is active and requires student participation. In a collaborative, tech-supported environment, students interact with peers and teachers to deepen and create knowledge, making the flipped classroom a setting where students play a central role (Chen & Chuang, 2016).

According to reference 43631584(1), students used to listen to teachers' lectures and complete assignments after school. In flipped classrooms, however, they preview upcoming lessons independently and use class time for hands-on activities like labs or presentations. Initially, stu-

dents may resist this model, as it requires self-led learning rather than passive listening (Latorre-Cosculluela et al., 2021).

3.3 Classroom Time Reallocation

Another core feature of the flipped classroom is reducing teacher-led instructional time, allowing more time for student-led learning activities. These activities are based on real-life contexts, enabling students to work collaboratively and complete tasks interactively (Martin et al., 2016). By moving content delivery outside of class, classroom time can focus on enhancing student interaction without sacrificing core knowledge, ultimately improving understanding (Clark, 2015). Additionally, interactivity becomes more effective when teachers use performance-based assessments, providing students with an objective understanding of their progress and better control over their learning (Zappe et al., 2009).

Learning is one of humanity's most valuable activities, and time is essential for learning. Sufficient and efficient study time are crucial for academic success. Flipped classrooms maximize "preview time," extending both teaching and learning time. Teachers must thoughtfully plan how to use class time efficiently (Lai & Hwang, 2016).

In class, rather than only listening to a lecture, students prepare the content in advance, researching online, reading textbooks, or watching teacher-prepared videos. During class, they engage in activities like experiments or project-based work (Smallhorn, 2017).

Students used to listen to teachers' lectures and complete assignments after school. In flipped classrooms, however, they preview upcoming lessons independently and use class time for hands-on activities like labs or presentations. Initially, students may resist this model, as it requires self-led learning rather than passive listening (Ramirez et al., 2021).

3.4 Classroom Time Reallocation

In the practice of flipped classrooms, the rapid development of information technology play a pivotal role in content delivery, student engagement, and teacher feedback (Zhang et al., 2020). Technical platform tools in flipped classrooms mainly include online learning management systems (such as Moodle and Canvas), video teaching platforms (such as YouTube and Khan Academy), interactive learning tools (such as Kahoot and Padlet), and collaboration tools (such as Google Docs and Microsoft Teams). These tools provide rich learning resources, promote teacher-student interaction, and support personalized learning. They greatly enhance the teaching methods of flipped classrooms (Bishop & Verleger, 2013).

Online learning management systems (LMS) allow teachers to upload teaching videos, distribute learning materials, assign homework, and track students' learning progress. Studies show that LMS and adaptive learning systems can provide personalized learning resources and feedback based on students' progress and understanding. This avoids a one-size-fits-all teaching approach and improves learning efficiency (Papamitsiou & Economides, 2014).Video teaching platforms are one of the core tools in flipped classrooms. Through videos, teachers can present complex theoretical knowledge in multimedia formats. Students can learn at their own pace. Mason et al. (2013) found that video teaching helps improve students' understanding and memory of the learning content, thereby enhancing learning efficiency.Interactive learning tools like Kahoot and Padlet use gamified and interactive learning activities. They stimulate students' interest and participation. Online assessments and interactive tools can provide real-time feedback on students' learning. This helps students adjust their learning strategies promptly and improve learning outcomes (Shute, 2008). Collaboration tools such as Google Docs and Microsoft Teams support collaborative learning among students. They promote teamwork and knowledge sharing. Research shows that using collaboration tools can enhance students' ability to learn independently. They also develop students' teamwork skills and problem-solving abilities (Hrastinski, 2008).

4. Discussion

This paper summarizes typical practical studies on flipped classrooms. Some changes brought by flipped classrooms in the process of practice and some features of flipped classroom practice are summarized. We find that, compared with traditional classrooms, the outstanding features of flipped classrooms are as follows: 1. Change of teacher's role 2. Change of student's role 3. Reallocation of classroom time

The implementation of the flipped classroom may create some manipulative problems for teachers' work. In the traditional teacher-led classrooms in East Asia, teachers may be too used to their original authority and role as a leader and facilitator, which may lead them to unconsciously reduce students' participation in teaching and turn the classroom into a solo speech more often. In addition, even though some teachers are gradually aware of the benefits of the flipped classroom in teaching and learning under the guidance of the school, the implementation of the flipped classroom may be a good idea. In addition, although some teachers are gradually aware of the help of flipped classroom in teaching under the guidance

of the school. However, some students and parents have not yet formed an understanding of the role of the teacher in the flipped classroom, and parents and students may still be opposed to or question the teacher's new teaching methods, which ultimately makes it difficult to realize the role of the teacher in the flipped classroom. At the same time, the practice of flipped classroom requires teachers to have more diversified abilities, teachers need to have a higher level of sensitivity to the learning status of students, and be able to capture the changes in the learning status of students more sensitively, and teachers are also required to be able to take into account the basic learning situation of students with different learning abilities and levels, which means that for some teachers, they need to spend more time to train their own ability to make up for their previous shortcomings. shortcomings from before, which increases teachers' workload in the short term and may also cause problems to their current sense of well-being towards their profession. Therefore, in order to better adapt to the transition, schools should give teachers more support through workshops or exchange sessions to help them better accomplish the transition from traditional teaching to flipped classroom.

The student-centred teaching format is more conducive to the development of students' independence and critical thinking, but at the beginning, some students, due to their long-term exposure to traditional teacher-led learning, do not have sufficient thinking skills and patterns to support them to participate well in the flipped classroom teaching in the short term. Therefore, in the early stage of the implementation of the flipped classroom, students may have a low sense of engagement and low self-efficacy in learning due to their lack of adaptation. Therefore, it is necessary for teachers to consciously cultivate students' critical thinking in daily teaching activities, and introduce the benefits of the flipped classroom as well as the implementation methods and purposes to students before the beginning of the course, so as to help students better adjust themselves to the flipped classroom teaching mode. Secondly, in the early stage of the implementation of the flipped classroom, due to the weakening of teachers' supervision and management, students' laziness may be encouraged, resulting in students being unable to complete high-quality classroom learning due to laziness.

Due to the large amount of literature on the flipped classroom and my more focussed topic, I adopted a purposive sampling approach and so kept narrowing down to focus on the practice literature, with a focus on the literature on the practice of the flipped classroom. However, this also led to an inevitable degree of neglect of literature that may have contributed to the findings but was not included in the search. For example, by searching mostly English language literature, we neglected some cases from other language regions. In addition, by focusing mostly on university cases, we may have overlooked the application of flipped classroom in junior high schools and primary schools. Therefore, future research can make up for the limitations of this article in terms of literature selection through a more detailed and comprehensive systematic review.

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