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Comparison Between Flipped Classroom and Blended Learning

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Abstract

Education system is continuously changing in the twenty first century. Education 4.0 and Industry 4.0 pose continuous challenges to the education sector. Continuous reforms are required from both educators and learners to keep up with the advancements. Blended Learning and Flipped Classroom Approach are two alternative learning pedagogies that satisfy the twenty first century tech-savvy learners who would prefer active participation to passive listening while learning. Traditional classroom does not suit the present-day generation of students who are no longer interested in print textbooks as the sole medium of learning. Colleges and Universities nowadays offer several online courses that individual students can complete according to their own pace. Though students are technology-friendly, they do not have assurance for accessibility to ICT-based self-learning due to socio-economic and techno-cultural reasons. Though both Blended Learning and Flipped Classroom Approach have certain distinct advantages, they also have certain limitations. This article explores and compares the strengths and limitations of these approaches to teaching and learning especially during the COVID-19 pandemic when classes were totally shifted to online mode.

Keywords: flipped classroom, blended learning, Bloom's revised taxonomy, achievement, engagement, motivation, interaction, research, India.

Introduction

Technology in the twenty-first century puts instantaneous access to information, and the Internet can be handily accessed through numerous technology tools such as laptop, computer, and Smartphone (Fu, 2013). Now more than ever, students spend much of their waking time on using some sort of technology tools; by using this technology, it is possible for them to

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interact with friends, instructors, and learning content everywhere, not only in the class but also outside the class through distance learning (Fisher, 2009). Also, many free learning materials have been provided on Websites for learning activities. Richter and McPherson (2012) argued that in today's digital age, every student can access many free Internet learning resources such as online video lectures and they can watch these free contents everywhere and at their convenience. Even more, the use of the traditional learning approach which focuses on the instructor as the centre of knowledge is irrelevant in today's digital age (Wang & Heffernan, 2010). As a solution, traditional classroom activities such as lectures, labs, homework, and exams can be moved to the digital platforms and students can study everywhere outside the classroom (Staker & Horn, 2012). This positive impact of technology growth has influenced the development of instructional technology in education and replaced the use of the blackboard with online video lectures (Evans, 2011)

The New Education Policy of India also emphasises upon the need for ICT based teaching and learning and also advices for increase in fund allocation for upgradation of infrastructure for digital or technology enabled teaching and training (Kazmi and Ali, 2021). Halili, Razak, and Zainuddin (2014) mentioned that the use of digital technology in education can build professional relationships through collaborating, coaching, and mentoring for social interactions in sharing ideas. In other words, by using various technological devices, the learners can study in different locations and times through collaborative remote learning. Therefore, living in a digital age demands the learners to work independently and collaboratively before coming to the classroom using various technology tools. New learning instructions that have emerged are now influencing education positively and producing students' independent learning. Indeed, technology in education is an ever-evolving process and demands the students and instructor always update the emerging technology in education. According to the Horizon Report which focuses on exploring and reporting emerging technology in education, the flipped classroom has been highlighted as an emerging technology for higher education which is very important to use at college level (Johnson, Adams Becker, Estrada, & Freeman, 2014).

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Literature Review and Theoretical Framework

In recent years, the flipped classroom has become one of emerging technologies in education and it can be a standard of teaching-learning practice to foster students' active learning in higher education (Hamdan, McKnight, McKnight, & Arfstrom, 2013). The flipped classroom is an approach to teaching and learning activities where students watch a video lesson outside the class and have hands-on activities in the class. Halili and Zainuddin (2015) note that the flipped classroom or reverse classroom is an element of blended learning, integrating both face-to-face learning in the class through group discussion and learning outside the class by watching asynchronous video lessons and online collaboration.

Blended learning is simply defined as the activity of teaching and learning which combined face-to-face physical activities with online learning (Heilesen, 2010; Lean, Moizer, & Newbery, 2014; Poon, 2014). Blended learning was practiced by mixed face-to-face and distance teaching and learning or the integration of both distance and face-to-face modalities to deliver instruction.

Flipped classroom is also known as a student-centred approach to learning where the students are more active than the instructor in the classroom activity. In this case, the instructor acts as a facilitator to motivate, guide, and give feedback on students' performance (Sams & Bergmann, 2012). Hence, by applying the flipped classroom approach to teaching and learning activities, the instructor can move the traditional lecturer's talk to video and the students can listen to the lectures anywhere outside of class. The flipped classroom allows students to watch the video according to their preferred time and need, and they can study at their own pace; this type of activity also increases students' collaborative learning outside the class. Thus, by flipping the class, the students will not spend so much time listening to long lectures in the classroom but will have more time to solve problems individually or collaboratively through with peers.

Applying flipped classroom approach also contributes to better understanding of technology use in teaching and learning activities; students use various technology media in learning activities independently, while the lecturer uses various technology media in their teaching practices (Zainuddin & Attaran, 2015). The study of flipped classrooms was based on the

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theory of Bloom's revised taxonomy of cognitive domain. This taxonomy provides six levels of learning. The explanation is arranged from the lowest level to the highest level:

1. Remembering: In this stage, the students try to recognize and recall the information they receive; they also try to understand the basic concepts and principles of the content they have learned.

2. Understanding: The students try to demonstrate their understanding, interpret the information and summarize what they have learned.

3. Applying: The students practice what they have learned or apply knowledge to the actual situation.

4. Analyzing: The students use their critical thinking in solving the problem, debate with friends, compare the answer with peers, and produce a summary. The students obtain new knowledge and ideas after implementing critical thinking or a debate in group activities. In this level of learning, the students also produce creative thinking.

5. Evaluating: Assessment or established peer-review knowledge, judge in relational terms; in this stage, students are evaluating the whole learning concepts and they could evaluate or make judgment on how far they successfully learned.

6. Creating: The students are able to design, construct and produce something new from what they have learned (Bloom, 1969).

In implementing flipped classroom, remembering and understanding as the lowest levels of cognitive domain are practiced outside the class hour (Krathwohl & Anderson, 2010). While in the classroom, the learners focused on higher forms of cognitive work, including applying, analyzing, evaluating, and creating. The following Figure 1 illustrates the level of students' learning in the flipped learning according to Bloom's revised taxonomy.

With the flipped model, the lower levels are presented before class through recorded lectures and video. Readings, simulations, and other materials also provide this foundational support for learning so that in-class time can be spent working on higher levels of learning from

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application to evaluation. In flipped classrooms, students go from the lowest level (remembering) to achieve the highest level (creating).

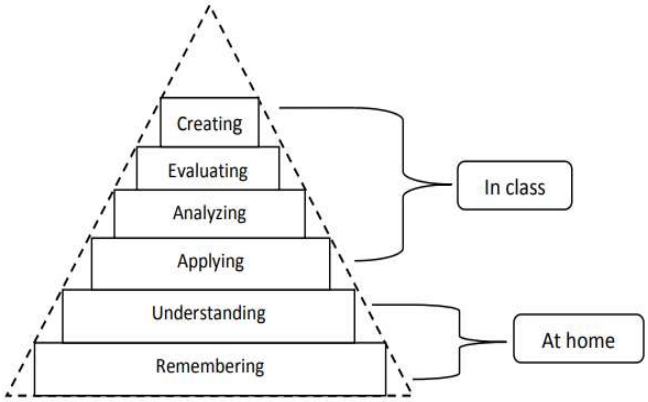

Figure 1. **Bloom's revised taxonomy in flipped classroom**

Lankford (2013) mentioned that the flipped classroom focuses on how to support the learners in achieving a higher level of the taxonomy domain. Additionally, Nederveld and Berge (2015) added that in flipped learning, classroom activity is spent on application and higher-level of learning rather than listening to lectures and other lower-level thinking tasks. As shown in Table 1, implementing flipped learning allows the students to spend more time supporting higher-level learning tasks such as a group discussion, while lower-level tasks such as knowledge and comprehension are completed independently outside the class.

Table 1. Comparison Between Traditional Classroom and Flipped Classroom in Achieving Higher Order Thinking of Bloom's Taxonomy

Level of learning	**Traditional classroom tools**	**Flipped classroom tools**
Remembering	Face-to-face lecture	Pre-recorded lecture, reading material, and watching video lectures independently
Understanding	Question and Answer	Reflection, peer-to-peer discussion and collaboration
Analyzing	Homework	Classroom activities such as a group discussion

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Applying, Evaluating, Creating	Homework or nothing	Student projects, presentations, peer evaluation and instructor evaluation.

Purpose of the Study

The flipped classroom and blended learning approaches are commonly used in various educational institutions worldwide. Therefore, in this paper we intend to explore the various essential aspects of these approaches and provide a comparative overview to be considered when implementing the flipped classroom approach in educational settings.

Methodology

Research Design

This study was conducted through systematic review of 20 refereed journal articles on flipped classroom and blended learning published from years 2011 to 2021. The rationale for reviewing in this study is that this method is able to evaluate publishing piles, process of analysis, and interpretation of articles including developing category, calculating frequencies and interpretation stages were carefully completed (Falkingham & Reeves, 1998).

In this study, authors examined the most frequently indicated keywords, chosen research areas, emphasized theoretical and conceptual backgrounds, employed research designs, used data collection instruments and data analysis techniques, focused variables, targeted population or participant groups, cited references, and cited authors.

Sample

The present study investigated 20 peer-reviewed scholarly articles published from 2011–2021.

Result and Discussion

Flipped classroom is similar to blended learning in the sense that both use face-to-face and online learning. At the same time it differs from blended learning because of its inverted activities. Online explanation through audio and video recordings complements and supplements in-class learning in flipped classroom through interactive and participatory

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activities. Hess (2013) argues that flipped classroom does not replace face-to-face teaching with online instruction. Flipped classroom students acquire content through short video lectures online and the subsequent class session focuses on analysis, application, and problem solving in order to deepen their learning. It, therefore, frees up the in-class time for more interactive activities while online activities in blended learning replace some of the in-class time. Since it is blending e-learning with classroom learning, it can be classified as a branch of blended learning. Flipped classroom is beneficial for the following reasons:

1. It promotes active learning, increases interaction between teachers and students, improves collaboration among students, allows flexible learning just-in time, and fosters critical thinking.
2. Flexible learning suits learning needs of digital native students. It can access learning resources anytime anywhere and study at their own pace leading to greater ownership of their learning.
3. It enhances teachers' and students' IT literacy.
4. It improves learning outcomes by closing the gap between the strongest and weakest students who consistently out-perform prior classes. It also causes higher success rates than online courses.
5. Students' feedback is encouraging:
    i. Increases analytical & problem-solving skills
    ii. Group work enhances understanding
    iii. Professors assist learners solve problems
    iv. Students want more classes to be flipped

Flipped classroom has its own limitations as well.

1. Since it encourages a learn-at-your-own-space style of education, its success relies heavily on the principle that students are self-motivated. If they are not, it would not work with the less or nil-motivated students.

2. It becomes a problem for the teacher to assess where a student is in their education and the teacher cannot make sure that every student is learning is at a steady pace. It works on cooperation of, and trust on students.

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3. Testing becomes difficult since students would take tests at different times after they have learnt at their own pace.

4. Fluctuation in the internet accessibility outside the classroom would make a lot of difference. It can create a digital divide.

5. A procrastination culture may develop in students when they are allowed to learn at their own pace.

6. Teachers' work increases: preparing and uploading condensed lectures, introducing classroom activities, and additional time and effort.

7. It does not follow the 'teach-to-the-test model.

8. If all teachers start flipping their classrooms, students would have to spend more time sitting before their systems/smartphones to the extent that it would cause serious problems to learning processes.

Conclusions: In spite of challenges posed by blended learning and flipped classrooms, they can still be effective, hands-on approaches to improve learners' achievement by involving them creatively and constructively in their learning. Both approaches combine judiciously with traditional face-to-face learning. Technology supports and not replaces teachers. Machines and technologies are secondary to humans and therefore they have additional roles to play in language learning. To sum up, Flipped Classroom Approach has proved as a useful medium of teaching and learning during the COVID-19 pandemic era and subsequently its reach and utility has also increased manifold in India. Although Flipped Classroom approach was familiar and very prominently used in foreign universities and educational institutes, nowadays due to above mentioned reasons it is becoming popular and an indispensable method of teaching and learning in India.

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