

Potentials and Challenges in the Implementation of Flipped Classroom

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Abstract

Flipped classroom is one of the pedagogies that created from the revolution of the use of technology in education that has changed the form of teaching, and to facilitate the teaching and learning process. Through the flipped classroom method, the use of technology is capable of providing students with reference materials to learn outside of teaching and learning session before the process of teaching and learning in the classroom happens. Thus, the time in the classroom can be provided with hands-on activities and group works. Although the implementation of the flipped classroom empirically and potentially proven to be implemented more widely, but there are some issues that need to be prioritized especially in the context of the flipped classroom learning method itself. In addition, improvements in technology and equipment also contributed to the existence of some challenges in the implementation of the flipped classroom method. In addition, this paper will describe and investigate the challenges in the implementation of the flipped classroom from different aspects. This is to ensure the implementation of the flipped classroom is not just the technology usage solely. The author believes that the implementation of an effective flipped classroom should give consideration to all elements that can impact positively and negatively on this method.

Keywords: Flipped Classroom, Technology, Teaching and Learning

1.0 Introduction

The use of technology has created a revolution in the world of education. The technology that used in teaching and learning process is not to replace the teachers' tasks but it is more to increase the interest and motivation that leads to the students' achievement specifically (Mohamad Amin and Ebrahim, 2014). The use of technology also helps teachers to deliver their teaching more efficiently. The use of technology in teaching and learning is one of the characteristics in 21st century learning which developed new pedagogies such as blended learning. Blended learning is one of the learning methods that can manipulate technology into teaching and learning. Blended learning has several pedagogy parts which are flipped classroom that as shown in Diagram 1:

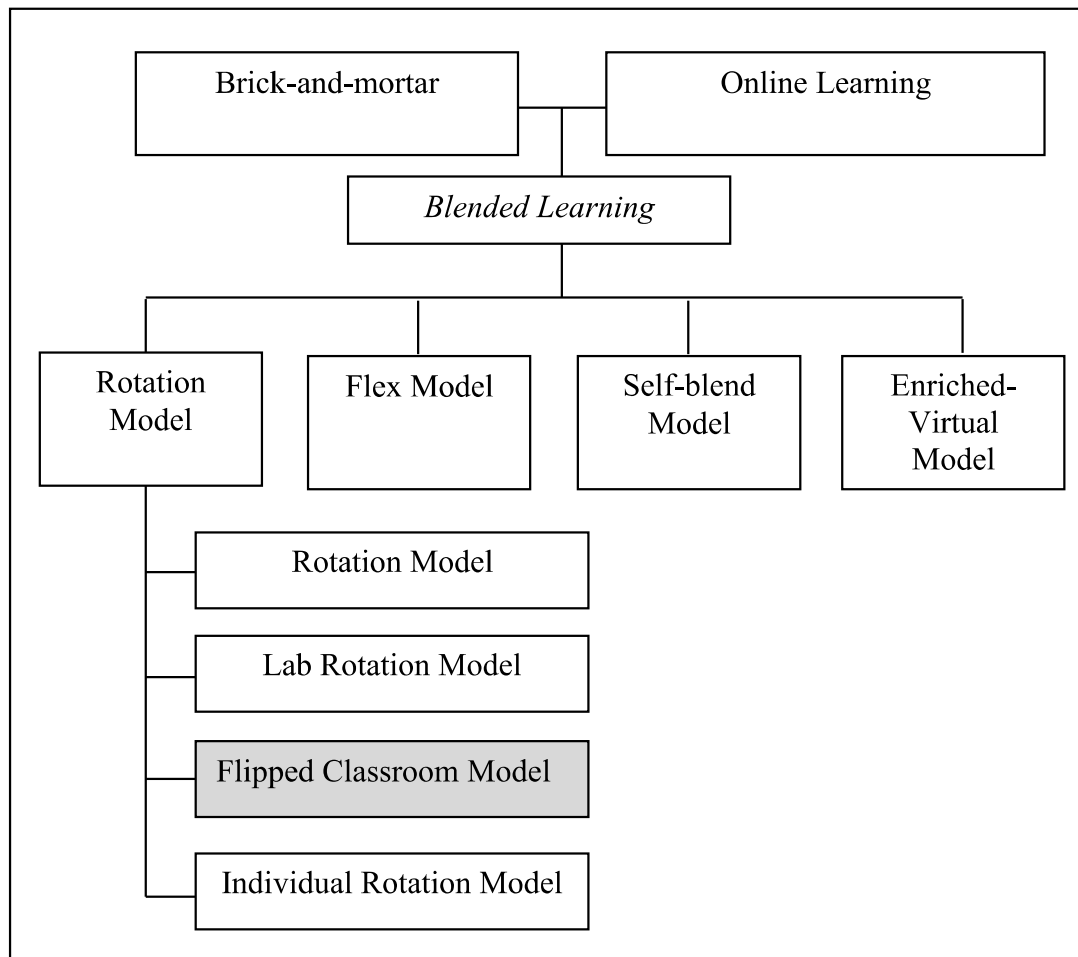


Diagram 1 Blended learning taxonomy (Staker and Horn, 2012)

Based from the Diagram 1 above, blended learning consists of four models which are rotation model, flex model, self-blended model and enriched virtual model. In rotation model, it consists of another four branches which are station rotation model, lab rotation model, flipped classroom model, and individual rotation model. Each model consists of specific features that are different with the normal traditional model. However, flipped classroom model still retains the time used in classroom, as well as the need for the teachers and the students to be in the classroom.

Compared to the normal traditional method, flipped classroom emphasizes on prior learning such as understanding of concept or theory outside of teaching and learning time (Baker, 2000; Strayer, 2012). The need of technology exists when traditional learning is combined with the online learning (outside of the teaching and learning period). For the learning in the classroom, the optimal time enables the teaching and learning to be performed by conducting practical activities under the teachers' guidance (Azlina, Norasykin, Zaleha, Hasnah and Baharuddin, 2015). Flipped classroom model is the revised of the traditional method that is show in Diagram 2:

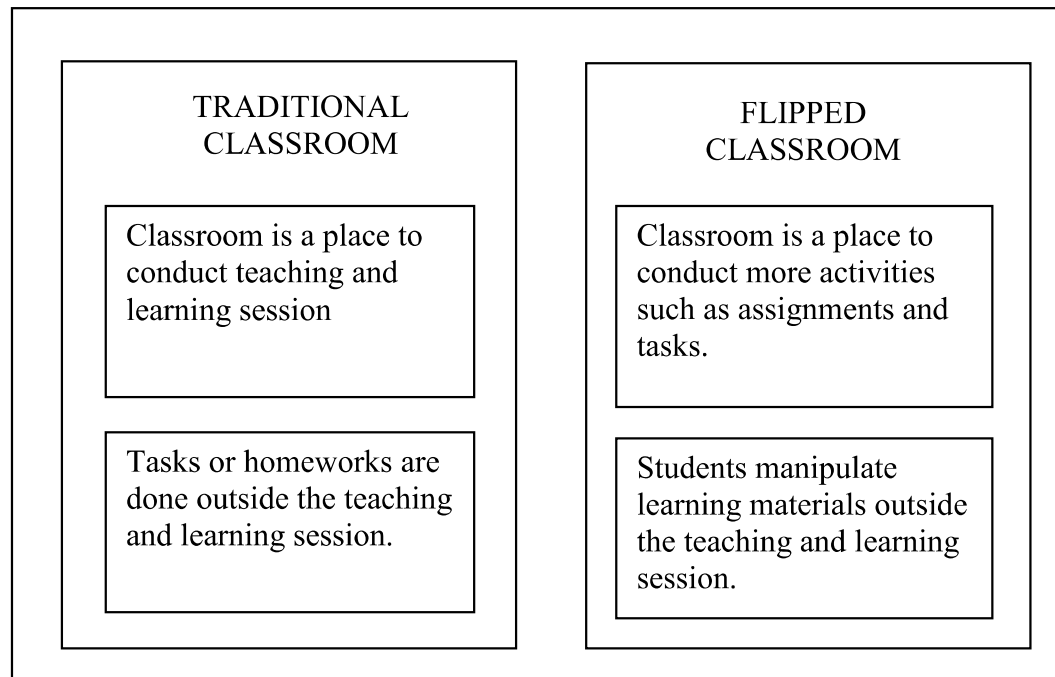


Diagram 2 Differences between traditional method and flipped classroom method (Baker and Mentch, 2000)

Based from the Diagram 2 below, one of the advantages of flipped classroom is it provided space for the students to manipulate learning materials outside the teaching and learning period. By doing that, optimal time in the class can be provided for activities that are more practical such as group work and discussion. Besides, teachers will have more time to interact with students. Interaction between students will also can be increased through discussion and group work. In addition, teachers will be able to identify students misunderstanding immediately. Learning process will be more meaningful through this kind of interaction. In other words, flipped classroom method is able to help students to have more understanding in learning through the maximum involvement of students. Learning aided technology that occurred under minimal teachers' surveillance is able to boost performance and increases students' motivation (Bergmann and Sams, 2009).

2.0 Literature Review

Previous studies have found that the implementation of the flipped classroom can improve student achievement. However, there are some issues that need to be addressed in order to ensure that flipped classroom is able to meet the learning objectives. Flipped classroom study has proven the effectiveness of its implementation in countries such as United States (Bergmann and Sams, 2009), Australia (Butt, 2014) and Singapore (Pang and Yap, 2014) but in Malaysia, study regarding flipped classroom method is still limited (Mohamad Amin and Ebrahim, 2014) as shown in Table 1 below:

Table 1 Research of the implementation of flipped classroom method in Malaysia

Author	Level	Area	Focus
Mohammed Amin, Supyan and Ebrahim (2014)	University	General	Readiness of the Application of Flipped Classroom
Wah, Ing, Keongand Jhee (2014)	University	TESL	Teaching English as Second Language
Raihanah M.M (2014)	University	Language and Linguistic	Teachers reflection
Zaid, Hasnain and Norhasliza (2014)	University	Pharmaceutical	Use of variety of online applications in large lecture
Sazilah, Norasiken, Halimatussaadiyah and Siti Nor Fadilah (2014)	University	General	The development of interractional books in flipped classroom implementation
Alma and Jones (2014)	University	Educational Leadership	Online Learning

Based from Table 1 above, all the researches were conducted based from the methodologies in variety of focus as below:

2.1 Methodology

Mohammed Amin et al. (2014) used a survey method using a five-point questionnaire to 352 samples of tertiary students from various disciplines. Overall, the findings of his research found that students are prepared to accept the application of the new method; flipped classroom based from the constructs that are measured such as technology, Internet and motivation application skills.

In contrast to the study of Mohammed Amin et al. (2014), which took a large number of samples to obtain quantitative data, Wah et al. (2014) also conducted research on the number of smaller samplers, which were 37 people to obtain quantitative and qualitative data. Wah et al. (2014) used an online questionnaire, semi-structured interviews and reflection journals through their personal blogs.

Raihanah MM (2014) also conducted a case study includes of two parts; the first part was about the reflection of her own experience in teaching conventionally. The second part was about the advice service between her and the students. As an instructor who chose to implement flipped classroom method in her teaching and learning, she used platform such as email to ensure continuous student's involvement. Raihanah M.M (2014) conducted teaching and learning using 1 hour lecture and 2 hours tutorial (1L+2T). Consultancy or advisory services between her and the students involved students' readiness in completing tasks. While students feedbacks were obtained from the reflection of the journal and Learning Management System (LMS).

In line of the case study of Raihanah M.M (2014), Zaid et al. (2014) also chose to handle case study in the implementation of the flipped classroom. The case study was conducted on a sample of students in the field of pharmacy. Based from the TEST-Learning Framework, the implementation of the flipped classroom is to ensure that teachers use appropriate technology in teaching and learning. This is because the use of technology to help attract the involvement of the students will not be successful if it does not meet the goals and learning objectives. So by paying attention to these issues, Sazilah et al. (2014) develop a iBook project based on ADDIE model. It aims to ensure that suitable and appropriate learning content and materials are used in flipped classroom method. In addition to these issues, Alma and Jones (2014) pointed out that the implementation of the flipped classroom will

fail if it does not fulfill important aspects such as the suitable and appropriate learning content.

Formative and summative assessments conducted by Alma and Jones (2014) is one of the ongoing efforts to ensure that the process of adjustment to the implementation of new methods such as the flipped classroom method. This effort is in line with the recommendations Flumerfelt and Green (2013) which states that regular and continuous efforts of various parties are necessary to ensure the successful implementation of a new teaching method.

2.2 Scope and Focus of the Implementation Review

Table 1 clearly shows that the implementation of the flipped classroom is across a range of areas such as language and linguistics, pharmaceutical and educational leadership. Flipped classroom method also seen covering the various dimensions by not only focus on the learning process in the flipped classroom.

In summary, based from Table 1 above, due to the flipped classroom is one of the new methods in Malaysia, Mohammed Amin et al. (2014) conducted a study at the university level regarding students' readiness for the implementation of flipped classroom. A survey has been done from a questionnaire to see the willingness of students to the flipped classroom by taking into account factors such as basic facilities of technology and technology and information. The findings of Mohammed Amin et al. (2014) found that students can receive flipped classroom learning approach. However, the implementation of the flipped classroom requires a constant effort from both sides of the instructors and the students themselves. Thus instructors are advised to increase knowledge and improve themselves with basic pedagogical training and flipped classroom while the students take time to adapt to these methods. Taking the recommendations of Mohammed Amin et al. (2014) that teachers also take initiative to improve themselves for the success of implementation of flipped classroom, Wah et al. (2014) and Raihanah M.M (2014) conducted a study of teachers and future teachers to measure the effectiveness and perceptions towards the implementation of the flipped classroom.

Wah et al. (2014) in his study found that flipped classroom is a new approach that gives positive effect in ensuring that students are able to understand the course content. Besides, Wah et al. (2014) also conducted a study to determine the ability and challenges in the implementation of the flipped classroom. They found that for the success of the implementation of the method, it is necessary to take into account various aspects including teaching session in the classroom. As Wah et al. (2014), Raihanah M.M (2014) also believes that teachers are one of the factors in contributing to the success of the implementation of the flipped classroom.

As an instructor, Raihanah M.M (2014) ensures the involvement of students especially the part-time students in the implementation of the flipped classroom by using a variety of platforms such as LMS, Whatsapp and email. Raihanah M.M (2014) also proved that through flipped classroom methods, it has been able to foster greater understanding among students. In addition, the use of LMS has changed the shape of teaching towards the optimal involvement of students. In line with the findings of Raihanah M.M (2014), Zaid et al. (2014) also laid down the maximum use of technology through his studies of lecture sessions consist of a large number of students.

Zaid et al. (2014) use student's own personal technology devices to integrate learning on the number of students at a lecture session that consist of between 40 to 400 students through classroom flipped method. Students are encouraged to explore their learning by using their personal devices such as mobile phones throughout the lesson. The use of online applications and tools such as Socrative, Poll Everywhere and Kahoot are able to engage students in meaningful learning interactively. Through the case study conducted by Zaid et al. (2014), lecture sessions filled with student feedback, discussions and activities

that require the maximum participation of each student. Total involvement made a certainty after students completed the sessions for self-paced course (PDP). Self-paced learning that occurs before the actual lecture session that is through online learning, is called i-lectures. In line with the recommendations of Wah et al. (2014) and Raihanah M.M (2014), Zaid et al. (2014), encourages teachers to prepare themselves for the training and skills of the new pedagogy which is flipped classroom method. Zaid et al. (2014) also pointed out that whatever the methods and technology used, it should be consistent with the learning goals and enhance students' achievement. In contrast to study conducted by Sazilah et al. (2014), the authors highlighted the development of reference materials in the flipped classroom method as the main emphasis of the method.

Sazilah et al. (2014) through his research has developed a reference material called iBook that can be easily accessed by students using the iPad wherever they are and at any time they want. IBook development outlined is based on ADDIE model that takes into account the development strategy of learning materials in the vicinity of the flipped classroom method. Although the development of iBook is a relatively new thing in the field of learning but any strength and weakness derived improvements would be made for other projects that will be developed later.

In order to ensure that education is in line with current technological developments, educational institutions need to be aware of any technological developments that affect teaching and learning indirectly. Alma and Jones (2014) pointed out that the flipped classroom methods will fail if teachers are using technology alone without emphasizing the needs of their learning and teaching methods. Flipped classroom method requires an emphasis on the various aspects of learning, especially in terms of content and pedagogical skills of teachers themselves.

Basically, based on the previous research of flipped classroom, it showed that this method has the potential to be implemented in a variety of fields. However, to ensure the successful of flipped classroom method, there are some constraints and challenges and factors that need to be taken care of along the practice of this new method implementation (Alma and Jones, 2014; Mohammed Amin et al., 2014).

3.0 Challenges in Flipped Classroom method

Many challenges have to be encountered if new rules or methods were about to be implemented, and so did to flipped classroom method. One of the challenges in implementation of the flipped classroom method is that students do not feel comfortable at the beginning of the session because they have to deal with the learning outside of classroom. Not all students have the motivation to learn on their own outside of the classroom environment especially if the time and place setting of the lesson are uncertain. This matter will lead to another problem in which students will come to class unprepared (Alma and Jones, 2014; Mohammed Amin et al., 2014).

Apart from that, it is crucial to have the planning to ensure that students are prepared in the learning outside the classroom such as preparing for online quizzes or questions to be answered at the end of the self-paced learning (Azlina et al., 2015). It is as well to make sure that the students are ready to learn with the manipulated materials, the exercise can also measure the extent of their understanding of these learning materials. However, the provided learning materials provided must achieve the specified learning goals and objectives. This is because there are low quality learning materials prepared for these students and the materials do not meet the learning objectives due to a lack of understanding about the flipped classroom (Mohamed Amin and Ebrahim, 2014). The concept of the flipped classroom is not only to provide students with learning materials outside the classroom. Therefore researchers are urged to develop their own learning materials based on learning objectives that have been determined to avoid drifting away from their learning objectives or lose focus despite the use of intermediate technology in teaching and learning session.

The need of technology is seen as necessity in flipped classroom method, however, the use of technology solely is not a factor in determining the success of the method (Azlina et al., 2015; Abu Bakar, 2013). The implementation of the flipped classroom is highly dependent on the content of learning, especially learning outside the classroom (Mohammed Amin et al., 2014). This is because learning outside the classroom in the absence of teachers for the purpose of learning to hone independent (independent learning) and it is possibly creating misunderstanding among the students if they are left unchecked.

The other issue that is commonly highlighted is less access to computers and the unsatisfactory access to Internet connection. Internet facility is intermediary for students to learn and learning materials outside of the classroom. In addition, the Internet also provides an opportunity for students to explore further information.

However, the challenge is not all students have access to technology and Internet connection as required. Hence the provision of learning materials are also necessary in the form of offline, as an alternative to ensure that there are no constraints in the learning process.

4.0 Discussion

Overall, previous studies have proven that the method of flipped classroom could give positive impacts on students in terms of learning and attitudes. However, the implementation of the flipped classroom should emphasize on the challenges and constraints (Alma and Jones, 2014; Mohammed Amin et al., 2014). This is because by ignoring these constraints and challenges, it may lead to failure. A continuous effort is also necessary to ensure that teachers and students can adapt to the flipped classroom methods accordingly. A discussion section must explain the results and research objectives.

5.0 Conclusion

Although the flipped classroom methods potentially available to be executed in Malaysia, but some important aspects have to be considered such as the material content and the use of appropriate technology. In addition, the way to deal with the challenges and constraints need to be addressed in order to see the effectiveness of the flipped classroom. Based on previous studies, the experimental studies must be increased to measure the actual impact of the implementation of the flipped classroom on students.

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