FLIPPING THE CLASSROOM: WHAT WE KNOW AND WHAT WE DON'T

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ABSTRACT

Flipped classroom is an element of blended learning and it is the reverse of the traditional classroom. The students do not listen to the lectures delivered in the classroom but outside the classroom through online video lecture. The teachers record themselves explaining the subject or get videos from free website such as Youtube to share with students to be watched outside the class. The flipped classroom has several advantages; students become more motivated and confident while discussing in the classroom because they have prepared by watching video lectures before coming to class, the classroom activities become more student-centered rather than teacher-centered because the teachers just act as facilitators. However, some disadvantages are also found in the flipped classroom It is a new model of learning and not all teachers and students are ready to apply it. This paper will briefly explain the use of flipped classroom as a new model of teaching-learning activity.

Keywords: Blended learning, Flipped classroom, Teaching and learning activities, Student-centered.

1. INTRODUCTION

Technology plays a very important role in reforming education from conventional to technology-based learning. The significant growth of technology in education has replaced the traditional learning such as using the blackboard and chalk in explaining the subject to technology-based learning such as doing homework on the laptop, internet, or tablet (Evans, 2011). Living in the current digital age enables everyone to easily access the learning materials anytime and everywhere using technology tools (Fu, 2013). Therefore, it has facilitated intensive communication among learners as well as between learners and the instructor whether in the classroom or outside. Adam and Nel (2009) stated that in establishing two way communications between teachers and learners, some technology tools have been applied and adapted in education.

Although technology has been widely applied in education, the significant role of the traditional classroom cannot be ignored. The traditional learning such as physical attendance to the classroom is very important for face to face interaction (Raths, 2014). Therefore, blended learning comes as one approach that combines the traditional classroom with technology-based learning. Blended learning does not ignore the traditional learning because it applies both face to face interaction in the classroom and online multimedia technology outside the classroom (Fearon, Starr, & McLaughlin, 2011). Blended learning is a model of teaching-learning with technology-assisted; it blends a traditional learning with technology-based learning (O'Connor, Mortimer, & Bond, 2011).

Blended learning is a general scope of teaching-learning model. According to Staker and Horn (2012), there are four models of blended learning and the flipped classroom is one element of rotation model in blended learning.

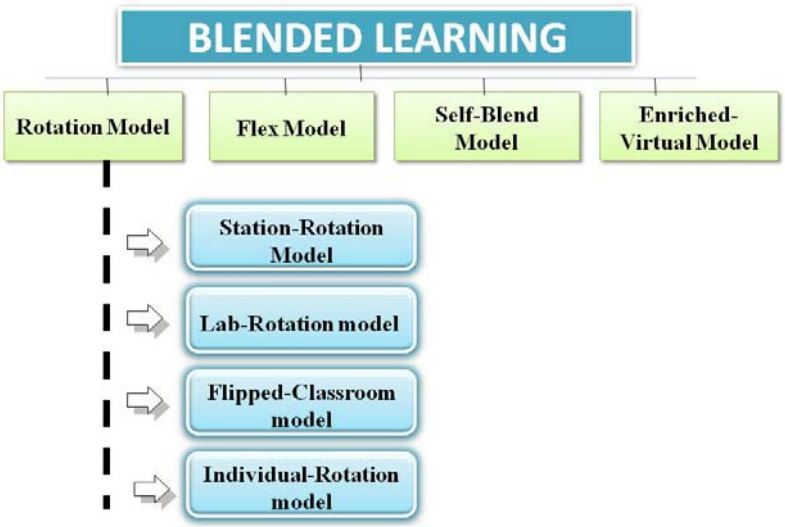

Figure 1: Blended learning models (Staker & Horn, 2012)

One element of blended learning well-known as being applied in the current time is the flipped classroom. This model is the contrary of traditional learning; students do not listen to the traditional lecture in the class but receive video instruction outside the class Bishop and Verleger (2013) stated that flipped classroom is a new model of learning that developed under the blended learning model, where students will not listen to lectures in the classroom but at home. In flipped learning, the lecture video is shared by the instructor as a learning activity outside the classroom. The traditional classroom lecture will be moved to the video which allows students to watch and repeat it several times as needed. Hamdan, McKnight, McKnight, and Arfstrom (2013) stated that online video lecture helps students watch learning material everywhere outside the classroom and they can repeat as many times as necessary. This paper will briefly explain the use of flipped learning or flipped classroom as a new model of teaching-learning activity.

2. FLIPPED CLASSROOM

The Flipped classroom had its roots in the development of technology from one century to another. Technology movement began with the printing press in the thirteenth century until the invention of the World Wide Web (WWW) in the twentieth century (Bishop & Verleger, 2013). In 2001, Massachusetts Institute of Technology (MIT) took the first step by designing Open Course Ware or Open Educational Resources (OER) and providing learning resources such as text books and videos; this step has influenced the emergence of flipped learning several years later(Bishop & Verleger, 2013). In 2006, Salman Khan as the alumnus of MIT continued the program of MIT (Open Course Ware) with the establishment of Khan Academy; he provided more than 3200 videos from different fields of study for free online access (Bishop & Verleger, 2013). According to McDowell (2010), Khan Academy is a non-profit organization to serve education in the world and his mission is "*providing a high quality education to anyone, everywhere*." Ani (2013) mentioned that at least 3,300 videos at Khan Academy have been accessed more than a hundred million times.

In 2007, two high school teachers in Colorado, Jonathan Bergmann and Aaron Sams tried to record the lecture video for supplemental students' learning materials. Their practice in recording the lecture video would grow and today is called Flipped classroom (Raths, 2014).Their idea came from their difficulty finding the time to re-teach lessons to their students who were sick, absent or could not attend class. With a budget of only USD50, they tried to record their own video and post edit online for students; finally all students whether they were sick or not started accessing the flipped lecture video at home for review and reinforcement (Tucker, 2012).Once Bergman and Samm posted their lecture video online, other students and teachers throughout the world were inspired to begin using the flipped learning and nowadays it continues to evolve, and is developed and modified by teachers and university lecturers (Tucker, 2012).

Flipped classroom is the reverse of the traditional classroom and it is also called the reverse classroom. Students follow the lectures outside the classroom with the instruction of video and do interactive discussion while in the class (Bishop

& Verleger, 2013). Bergmann and Sams (2014) stressed that the flipped learning model established less lecturing and more activity in the classroom; group activity was usually conducted in the flipped classroom to build an interactive and active learning. The learners have a great time to exchange and elaborate their idea during the class discussion. Two strong elements in the flipped classroom are using technology media as the instruction of learning while outside the class and establishing interactive and communicative learning while inside the class (Zappe, Leicht, Messner, Litzinger & Lee, 2009). Therefore, both inside and outside the class activities are very effective for the student learning process.

Because of its new model and because it brought a new atmosphere in teaching and learning, the flipped classroom began to be applied by many teachers and lecturers worldwide. Bergmann and Sams (2014) stated that nowadays the flipped learning becomes an instructional method that begins to be applied in schools throughout the world. The flipped classroom is very flexible to be adopted whether by teachers or lecturers. It can be applied to any level of education, but it depends on the learners, resources and time available (Milman, 2012).

3. ADVANTAGES OF USING FLIPPED CLASSROOM

Flipped classroom offers many benefits. It will save the time of students' listening to lecture in the classroom because they can watch the lecture on video at home. Classroom activity will be used to solve problems and hold discussions. In the flipped classroom students watch the video lecture at home which replaces live instruction in the classroom and while in the classroom they do more interactive and active activity such as working with peers (Cohen & Brugar, 2013). Therefore, as stated by Milman (2012), the flipped classroom will save the students' and teacher' time; valuable time can be used in the classroom for discussing rather than listening to the lectures. The flipped classroom will make for more efficient instruction and activity during classroom hours and because students have already prepared learning materials before coming to the class, they have to be responsible for their own learning and the teacher will act as a facilitator to guide more in learning rather than teaching. Zappe et al. (2009) stated that the Flipped learning will save students' time to learn actively, classroom activity will not sacrifice valuable time needed by students to cover the content. Moreover, flipped classroom will make students more motivated and confident in the classroom because they have already prepared their learning while outside it (Hamdan et al., 2013).

According to Fulton (2012), advantages of applying flipped learning include: students will move at their own pace, teacher will be able to know students' difficulties in doing the homework in the class, the teacher can easily update the curriculum and provide it depending on learner needs, the activity in the classroom is more effective and active, teacher can easily observe students' interest and they will use the technology tools as the appropriate learning media in the 21st century. While according to Driscoll and Petty(2013), with the guidance of technology media, the students will be more autonomous in learning activity and the lecturer will act as a facilitator and motivator.

Bergmann, Overmayer, and Willie (2011) mentioned that there are three of most applicable Flipped learning for students: the activity of learning will continue not just in the classroom, the content of learning will be designed according to students' need and the student-lecturer interaction can increase. Students will prepare to study hard outside the class, while in the class they will perform in discussion (Overmyer, 2012). Millard (2012) explained five reasons to benefit from flipped learning: focuses on classroom interactive discussion, provide teacher freedom, teacher can establish personal communication with students regarding the subject, homework and any other progress, establish a strong team work and increase student engagement.

Cohen and Brugar (2013) stated four advantages of flipped learning: students will take responsibility for their own learning, they can watch and repeat the online video lecture as necessary, students and teacher establish personal interaction whether inside or outside the classroom and the instructor provides personal instruction. Schmidt and Ralph (2014) stressed that students will be ready to solve the problem and investigate the solution in the class because they have already prepared at home by watching the online video lecture before coming to class.

The flipped classroom has a variety of ways to apply for teaching-learning activity (Schmidt & Ralph, 2014). The lecturer should be creative in designing the teaching-learning process, use any kinds of media for the outside class interaction, and share videos related to students' learning. The flipped classroom is one model that makes students more active and interactive both in the classroom and outside it. When teachers apply Flipped learning, it means that they apply active learning. Active learning has been stressed by many educational theorists over the last century such as Dewey (1938); Kolb (1984); and Slavin (1995). Therefore, it is not something new as a learning approach in education.

According to Nichols (2012), in the flipped classroom, the students have time to review the subject, the students who cannot attend class will obtain the materials of learning, the students do not need to do homework and actively work, discuss and solve problems in a group. For the teachers, he stated that the lecturer acts as a facilitator who facilitate the learners with more practice, the lecturer involves in students' learning activity or acts equal with the students and they always connect with their students both inside and outside the class.

The following schema presents the distinction between the flipped classroom and traditional classroom; the flipped classroom shows more advantages than the traditional classroom.

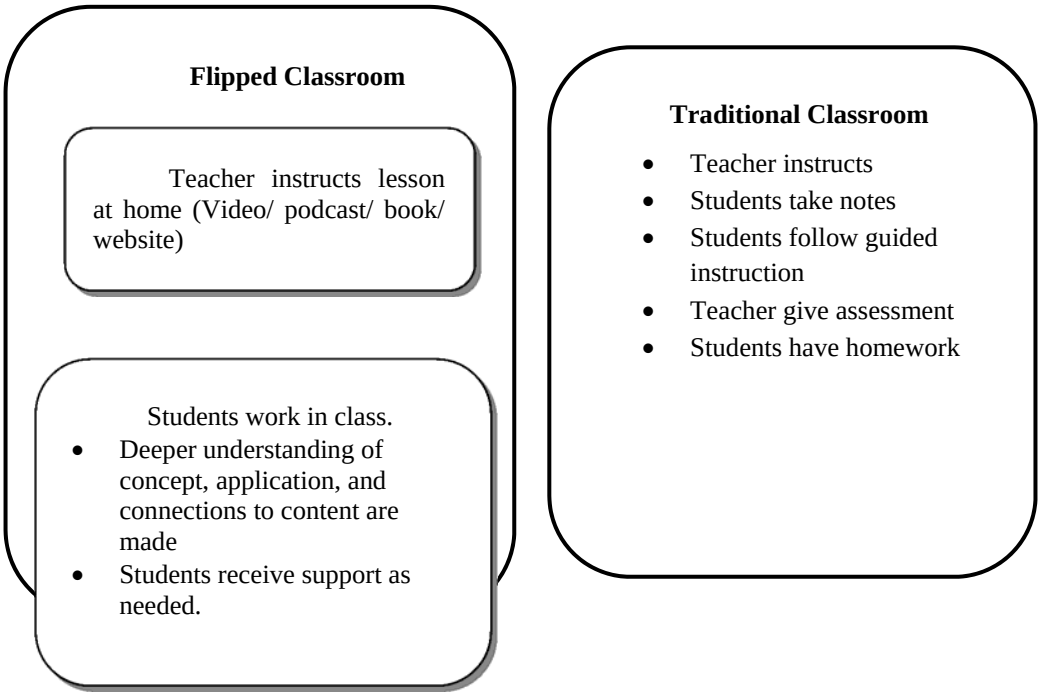

Figure 2: Comparison between Flipped and Traditional classroom (Nichols, 2012)

4. THE DISADVANTAGES OF USING FLIPPED CLASSROOM

Flipped classroom is a new model that is applied in the teaching-learning process and not all teachers are successful in applying it. Flipped learning becomes a challenge for the beginners or for those applying it the first time. Collins (2011) stated that those who start applying a new model in teaching usually face a challenge even after they are already well-prepared. Usually the teachers have a great spirit in shifting traditional learning to flipped learning, but the students are not ready for this change. When teacher is very enthusiastic in applying the flipped classroom, students will react negatively and not all of them want to watch the video outside the class (Raths, 2014).

Besides that, teacher has to spend much time not only to teach students in the class but also outside the class, also to design or look for the best video to be shared with students (Bergmann & Sams, 2014). It is very difficult for the teacher who applies the flipped learning the first time because of unfamiliarity with the activity of teaching-learning inside and outside the class. Since the teachers will act as facilitators they need to spend more time controlling the students. More time will be spent by the teacher to design good learning materials to make students interested in learning outside the class.

Enfield (2013) stated that if the learning instruction is not interesting, it will make students not interactive in learning. He also stated that in the flipped classroom, the teacher needs money to produce the material. Milman (2012) stressed that poor quality of video becomes the problem in flipped learning. Milman (2012) also stated that students with

learning disabilities will have problems with flipped learning. Therefore, flipped classroom is not supported to be applied for disabled students.

5. USING ONLINE VIDEO LECTURES IN FLIPPED CLASSROOM

A large percentage of internet users in different world regions showed how the internet grew fastest in the world and accessing online vides becomes easier for everyone. In 2013 the access of online video by adult Americans increased from 69 percent in 2009 to 78 percent in 2013, most of them accessed YouTube video (DeCesare, 2014). Sife (2013) declared that in the beginning of 2012, there were more than 2 billion internet users in the world.

Many researchers and educators argue that the flipped classroom is synonymous with using technology media as the instruction of learning and specifically video which replace traditional lecture in the classroom (Overmyer, 2012). In flipped learning, the video provided to students can be recorded by the teachers themselves or adopted from free websites. There are many educational videos provided on the free sites such as YouTube, TED-Ed, and Khan Academy (Raths, 2014). Ash (2012) also stated that in sharing the online video course, the lecturer can record his or her own video, also the video provided on free websites can be used by lecturers for students' learning activity outside the classroom, especially the video on sites such as YouTube EDU, Khan Academy, and PBS.

Students are allowed to watch online video lectures anywhere outside the classroom. At any convenient place and time, students can watch the video (Hamdan et al., 2013).The lecturer should pay attention with the common criteria of online video lecturers in the flipped learning. Evans (2011) suggested the tips for flipped video, by stating that the video should be short, including picture, animation and humor; every content on the video should excite students. Bergman and Sams suggested that the flipped online video lecture should be interactive and short. Raths and Graham Johnson also suggested that the long video should break up into sections with interactive elements (Raths, 2014). Raths (2014, p. 19) "That means for a 4th grader, your videos should be no longer than four to six minutes; and for a 10th grader, that means 10- to 15-minute videos."

In the first beginning of applying the Flipped classroom, sometimes teachers face the obstacle that not all students want to watch the flipped video outside the class. To solve this problem, Raths (2014) suggested that when the students do not watch online lecture video outside the class, the lecturer should avoid explaining the lecture already shared on the video, this way will help students to watch the video at other times. Teacher should give quizzes regularly to make the students watch the video (Enfield, 2013). Another problem faced in the flipped classroom is the assumption that the flipped classroom is difficult to be applied in areas with limited internet access because students will have obstacles in watching the video. This assumption is not true; the flipped classroom can be applied even in such areas. As an alternative, the teacher can burn DVDs for sharing with students (Raths, 2014).

Although the video is an important tool in the flipped classroom, teacher should not only focus on the video and ignore other significant activity in the flipped classroom such as teacher and student interaction outside the class, students' interactive activity inside the class and teacher's role as a facilitator in teaching-learning activities. Tucker (2012) stated that flipped classroom is not only instructional videos used for students' learning activity, but also use all integrated approaches to make the flipped learning comfortable for teaching and learning. Flipped classroom not only focuses on how to use the video lessons, but also how teachers interact with students inside or outside the class (Sams & Bergmann, 2013).

6. CONCLUSION AND POTENTIAL FUTURE RESEARCH

Students of the current era are more engaged with technology than the previous generation. The hope is that with the development of technology, education also developed and technology can be used as a source to facilitate the teaching-learning process. Flipped classroom as an element of blended learning is a new model applied in current education and it becomes an alternative model to develop the quality of teaching and learning. The learning process will take place not only in the class but also outside it; students will take responsibility for their own learning and learn at their own pace. For the future research in the flipped classroom, the writer suggests that researchers implement the

flipped classroom in areas with limited internet facilities. As Raths (2014) mentioned, although there is a limitation of internet access to share the online video lectures with learners, the DVD can be used as an alternative tool for video sharing. Experimental research can be conducted with other subjects that interest the researcher. By using an experimental class and control class one can investigate how effective the application of flipped classroom is compared to the control or traditional classroom.

REFERENCES

Adam, S., & Nel, D. (2009). Blended and online learning: Student perceptions and performance. *Interactive technology and smart education, 6*(3), 140-155.

Ani, K. K. (2013). Khan academy: The hype and the reality. *Education Digest,78*(6), 23-25.

Ash, K. (2012). Educators evaluate 'flipped classrooms'. *Education Week, 32*(2), s6-s8.

Bergmann, J., & Sams, A. (2014). Flipped learning: Maximizing face time. *Training & Development ,68*(2), 28-31.

Bergmann, J., Overmyer, J., & Wilie, B. (2013, July 9). The Flipped Class: What it is and What it is Not. *The Daily Riff.* Retrieved July 11, 2014, from http://www.thedailyriff.com/articles/the-flipped-class-conversation-689.php

Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. In *ASEE National Conference Proceedings.*Atlanta, GA.

Cohen, S., & Brugar, K. (2013). I want that... flipping the classroom. *Middle Ground, 16*(4), 12-13.

Collins, P. T. (2011). An insider's view to meeting the challenges of blended learning solutions. *T + D, 65*(12), 56-61.

DeCesare, J. A. (2014). The expanding role of online video in teaching, learning, and research. *Library Technology Reports,50*(2), 5-12.

Dewey, J. (1938). *Experience and education*. New York, NY: Collier Macmillan.

Driscoll III, T. F., & Petty, K. A. (2013). Student-driven education with Flipped Learning and 20-Time. *Practical Applications and Experiences in K-20 Blended Learning Environments*, 120.

Enfield, J. (2013). Looking at the impact of the flipped classroom model of instruction on undergraduate multimedia students at CSUN. *Techtrends, 57*(6), 14-27.

Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet Research, 15*(2),195-219.

Fearon, C., Starr, S., & McLaughlin, H. (2011). Value of blended learning in university and the workplace: Some experiences of university students. *Industrial and Commercial Training, 43*(7), 446-450.

Fu, J. S. (2013). ICT in education: A critical literature review and Its Implications. *International Journal of Education & Development using Information &Communications Technology, 9*(1), 112-125.

Fulton, K. (2012). Upside down and inside out: Flip your classroom to improve student learning. *Learning & Leading with Technology, 39*(8), 12–17.

Hamdan, N., McKnight, P., McKnight, K., & Arfstrom, K. M. (2013). The flipped learning model: A white paper based on the literature review titled A Review of Flipped Learning'. Arlington, VA: Flipped Learning Network.

Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice Hall.

McDowell, E. A. (2010). Using Open Educational Resources to help students understand the sub-prime lending crisis. *American Journal of Business Education, 3*(11).

Millard, E. (2012). 5 reasons flipped classrooms work. *University Business*, 26-29.

Milman, N. B. (2012). The flipped classroom strategy: What is it and how can it best be used? *Distance Learning, 9*(3), 85-87.

Nichols, D. (2012, September 18). Flip Classroom Instruction: How to Guide Part 1 -- Educational technology tips. *Educational Technology Tips*.

O'Connor, C., Mortimer, D., & Bond, S. (2011). Blended learning: Issues, benefits and challenges. *International Journal of Employment studies, 19*(2), 62-82.

Overmyer, J. (2012, September/October). Flipped classrooms 101. *Principal*, 46–47.

Raths, D. (2014). Nine video tips for a better flipped classroom. *The Education Digest, 79*(6), 15-21.

Schmidt, S. M., & Ralph, D. L. (2014). The Flipped Classroom: A Twist on Teaching. *The Clute Institute, 98-104.*

Sife, A. S. (2013). Internet use behaviour of cybercafé users in Morogoro Municipality, Tanzania. *Annals of Library and Information Studies (ALIS), 60*(1), 41-50.

Slavin, R. (1995). *Cooperative Learning: Theory, research, and practice*. Boston, MA: Allyn & Bacon.

Staker, H., & Horn, M. B. (2012). *Classifying K-12 Blended Learning*. San Mateo: Innosight Institute, Inc.

Tucker, B. (2012). The flipped classroom. *Education Next, 12*(1), 82-83.

Zappe, S., Leicht, R., Messner, J., Litzinger, T., & Lee, H. W. (2009). Flipping the classroom to explore active learning in a large undergraduate course. In *American Society for Engineering Education*. American Society for Engineering Education.