REVIEW ARTICLE

ISSN
INTERNATIONAL STANDARD SERIAL NUMBER INDIA
2395-2628(Print):2349-9451(online)

FLIPPED LEARNING: AN INNOVATIVE APPROACH IN TEACHING-LEARNING PROCESS

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ABSTRACT

The digital revolution triggered by Information and Communication Technologies (ICT) in all walks of life has touched the education sector. In this new paradigm shift, there is an extensive application and integration of ICT in education that can create boundless opportunities for students learning. This shift has given way to profound changes in teaching and learning approaches. Learning is not restricted to a certain period of time but a lifelong process and can happen anywhere and everywhere. Education is just a preparation for high-level life-long learning. So, to have effective learning, new and innovative teaching approaches should be used to address the needs of the learners of present generation. One such approach is Flipped classroom learning. In this context, the present paper focuses on the Flipped Learning– a student-centered approach that helps in the active learning process. The study aims at explaining the theoretical background of this technique, the benefits and challenges of the model in the classroom teaching setting, Blooms taxonomy and the tools that help the teachers for effective teaching.

Keywords: Flipped Learning model, digital technologies, Flipped classroom, Tools, Blooms Taxonomy.

Introduction

The aim of present education is to make the students employable and successful in their professional careerwhich requireseffective application of knowledge. Withthe fast growth in communication technology, there is a lot ofdevelopment in the educationsystem and therefore demands for different learningmethodsor approachescome out of it. It is the responsibility of the educational system to cope with this transformation. The education system should not limit the learning process to traditional structure i.e. chalk and talk method but should incorporate modern ways by using various technological opportunities. The induction of new technology automatically brings about pedagogical changes as said by Warschauer (2003). As Schaal, (2010) rightly pointed out that as changes in knowledge and technology are so fast, education also keeps up with it and continues its development with innovative learning approaches. The very existence of a new strategy ie flipped classroom system in education (Nguyen &Toto, 2009) is taken out in advance transformation in education training. It was Jonathan Bergmann and Aaron Sams, chemist teachers of woodland park high school in 2007 who first got attracted to this approach. All the live-lessons are recorded and broadcast online by creating a blog for the students who miss them. This new learning approach is mainly aimed at providing material or content for the

preparation by the student before the course (Bristol, 2014) and during the course by applying certain activities that increase the quality of one on one teaching (Formica etal.,2010)

Concept of Flipped learning approach:

As per the definition specified by the key leaders of the Flipped Learning Network, 2014 (FLN), Flipped classroom learning is an approach in which teaching shifts from learning in the group to individual learning, and results in the transformation of group learning into an individual as well as dynamic learning environment where the teacher guides the students as they understand and apply the concepts creatively. In simple words, thelecture delivered traditionally in the classroom and related assignments or projects or group discussions outside the classroom are flipped.

The flipped classroom model is believed to be " student-centered learning"which is the summation of interacting activities during the lesson and individual teaching directly based on the computer out of lesson" by Bishop and Verleger(2013).

Traditional Learning vs Flipped learning classroom:

A flipped classroom is a teaching technique that is contrary to the traditional learning environment.

In the traditional model of classroom instruction, the teacher is the central focus andprimary source of information in the class. In this mode ofteaching in the classroom, much emphasis is given on explaining the content using the lecture method. Here the students become passive listeners and their involvement in the conventional model class is limited. The entire session is controlled by the teachersince it is teacher - centric. Typically, this pattern of teaching involves giving to studentsthe tasks of reading from a textbook or practicing the concept by working on certain exercises given in the text. In this method, the teacher directs the students to use the technique of memorization and recitation and thereby not developing their critical thinking, problem-solving, and decision-making skills (Sunal et al 1994).

On the other hand, in the flipped classroom , instructions are shifted to a student-centered model. New topics are introduced outside the classroom so that the time spent in the classroom is utilized to explore topics in greater depth and create meaningful learning opportunities. Various methods can be used in the"content delivery'' in a flipped classroom. Mostly video lessons are prepared by the teacher or third parties.With its student-centered approach, bothKnowledgeacquisition andpractice are made by students actively.

The learning material or the contentisprovided to students prior to the class. Students should come prepared with prior knowledge on the given topics. Assignments are given on thetopic, clarification of doubts and group discussions are held inside the classroom in the presence of the teacher with his/her guidance. The traditional and flipped classroom methodology is indicated in Figure 1.
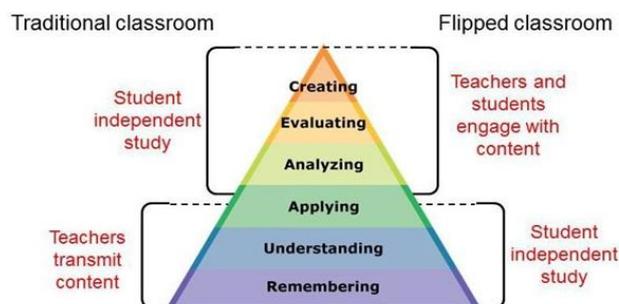

Figure 1. Traditional Vs Flipped Learning.

Bloom's Taxonomy and Flipped classroom

Blooms Taxonomy created by Benjamin Bloom in the 1950s is one of the most recognized learning theories in the field of education. This concept of learning is depicted in the shape of a pyramid with various levels of learning. It acts like a lens through which various stages of learning can be viewed. Blooms taxonomy is

often used by the educators in order to create learning outcome that targets both subjects and also the depth of learning in which they wanted students to achieve, and by these, they create assessments that accurately report on students' progress towards this outcome (Anderson and karthwohl, 2001).

Blooms Taxonomy identified 3 levels of learning domain: Cognitive domain, psychomotor domain, Affective domain. Cognitive domain consists of six categories- Remember, Understand, Apply, Analyze, Evaluate, Create.

This updated version of Bloom's Taxonomy is pertinent to flipped learning. In this format, the transmission of information operates as a base for learning. It is accessed by the students independently outside the class. In class, the teacher or mentor acts as a facilitator and give guidancesince, the assimilatedinformation requires greater critical reasoningTalbert (2012).

The Cognitive domain, Understand and Remember, which is a lower level of learning occurs in a class of traditional learning, while activities involving a higher level of learning are done by the students outside the classroom. However, learning is flipped in the flipped classroom model. As we see from the pyramid, a Lower level of cognitive work is done by students before the class and while in class they engage themselves in cognitive levels of learning which are higher but with peers and teachers present with them. These stages are schematically represented in pyramid form as shown in fig 2.
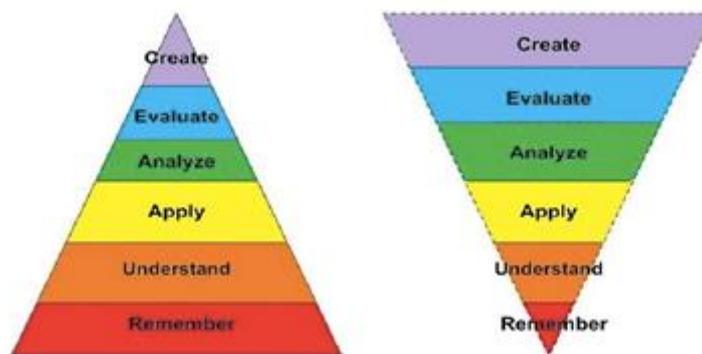

Figure 2(a)Figure 2(b)

Figure 2. Flipping Bloom's Taxonomy (Source: New Literacies Institute:
http://nli2011.wikispaces.com/Bloom%27s+taxonomy)

Figure 2(a) depicts the attainment of cognitive levels from lower order to higher order. Remember cognitive level stands at the base of the triangle which signifies the least challenging cognitive domain (Anderson and Krathwohl,1965). In spite of its limited contribution in the field of learning, the space allotted for this level is wide; it is clearly represented in fig 2(a). This indicates the amount of attention this skill often receives in conventional classrooms. Understand and Apply is the second and third cognitive level in the triangle. As the triangle ascends the cognitive levels also become more complex and challenging. The learning should also be meaningful and more attention and practice are required. The narrowing band in the triangle shows that the time allotted in the traditional classroom is very little to cultivate these skills. The most important and challenging skills such as Create, Evaluate, and Analyze are given top priority and are placed on the top of the triangle, but the amount of time and practice allotted in the classroom is very less and hence it is difficult to develop these skills amongthe students. Hence, based on the above discussion it is observed thatthe traditional pedagogy fails.

Figure 2(b) represents the flipped triangle, Remember cognitive level is kept at the lowest, and this shows the least importance to be given in the classroom. The narrow band portrays the amount of time that should be dedicated in the classroom. On the contrary, the more challenging skills in the inverted model are given to create, evaluate and analyze. The bandwidth for all these skills is wider this signifies the amount of time and effective learning that should be spent in the classroom by creating opportunities to collaborate with the peer

group, discuss and solve problems on the topics given prior to the class. Thus, Flipped Learning model encourages Learner- Centered approach.

Steps to organize Flipped Classroom:

According to Jeff Dunn (2014) "The following are the procedure that helps in flipping your classroom.

1. **Plan:**Planning is the primary step. Plan for the lesson and outline the key learning outcomes.
2. **Record:**Instead of teaching the lesson in the class, make a video. It should be ensured that all the key elements that need to be explained must be in detail in the video. In Bergmann and Sams' book (2012), they rightly pointed out not to create a video just for the sake of making it. Videos must be designed in such a way it is relevant and necessary as per the content or concept. All these mainly depend on the educational goal of the lesson.
3. **Share:**The recorded video should be shared with all the students. The students should be prior informed that the contents present in the video will be discussed in the class.
4. **Change:**Since the students have viewed the lesson in advance, they're prepared for learning the concept in a more detailed or in-depth than before.
5. **Group:**The teacher should make the students form different groups and each group is given the assignment to be worked on in the class.
6. **Regroup:**Get the class back together to share the individual's group work with everyone. Ask questions, dive deeper than before.

Benefits of the flipped classroom

1. Students do their learning independently.
2. Lessons and contents are accessible anytime.
3. Studentsinvolve in the activity.
4. Develops critical thinking skills and Analytical thinking skills.
5. Strengthens Teamwork and co-operative skills.
6. Students are encouragedto askquestions.
7. It improves students learning performance.
8. Class time is used more effectively in discussion and doubt clarification.
9. The students can repeat the video many times if the concept is not well understood.
10. It develops students reading and listening skills.

Challenges of the flipped classroom

1. Video / Material preparation - It is a laborious and challengingtask to prepare the materials and create an instructional video for a flipped class.
2. Lack ofresourcessuch as electronic gadgets and internet access at home will turn out to be a hindrance in their learning.
3. Students should be well prepared before coming to the class. Lack of preparation by the studentswill affect the benefits of flipped learning.
4. Creating interest in the students towards flipped classroom model is one of the greatest challenges for the teacher.
5. Motivating the students for independent work is also a challenging one.

Tools used in the Flipped Classroom:

1.Loom: Instructional videos are an important component in the flipped classroom.Loom Application help in making our presentation effective and Interesting. Generally, we mail the PPT to the students. Sometimes students may or may not understand the content given in the slides unless the teacher explains it. A loom is a creative tool that helps teachers to create pre-recorded video content for online learning. It is a screen recording tool and creates a personal touch with the nuances of tone and facial expressions.

Figure 3 shows the usage of Loom application for online learning.

Figure 3. Loom application

2. Kahoot: Kahoot application is a tool that is used in teaching and learning. It is a tool that helps the teacher to measure the student's progress to what level the learner has understood the concept. . This tool replaces the traditional paper quiz method and creates an interactive game-based learning environment. The main focus is to motivate students towards learning.

This tool is used to administer quizzes, facilitate discussions, and also helps in collecting survey data. Herequestionsare displayed on the screen;students can answer the questions with the help of their smartphone, computer, or tablet. Another important feature of this tool is we can also add video and images during a quiz to tap into the student's knowledge, and reach different learning styles.

The webpage ofKahoot application and online assessment is shown in figure 4 and figure 5.
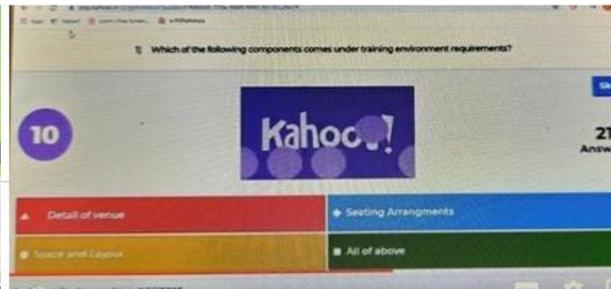

Figure 4. Kahoot application   Figure 5. Kahoot application for online evaluation.

3. Google Classroom: Google Classroom is the most powerful Learning Management System (LMS) freely available for all. It is developed by Google for the teachers and students. It is easy to learn, user friendly and it supports Gmail, Google Drive, and Google forms.

The main purpose of the Google Classroom is, it helps to organize the class topics-wise, add study material to each topic, create assignments, evaluate assignments, create quizzes, and providegrades to the students. Teachers can monitor the progress of each student by checking their grades and givingappropriatefeedback. Figure 6 shows the Google Classroom platform for a course subject.
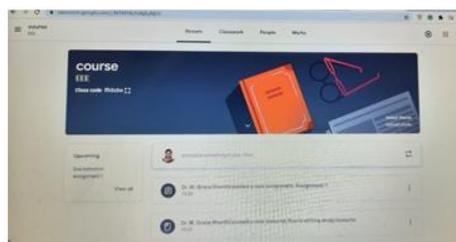

Figure 6. Google Classroom application for online learning

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Conclusion

The education system should not be limited to the conventional way of teaching but should incorporate modern ways by using various technological opportunities. The flipped learning model is one such pedagogy that helps to make classroom teaching learner-centered. This technique helps the teachers to design the tasks and materials in a more creative way. In this paper, the authorhighlights certainICT tools (Loom, Kahoot and Google classroom) that can be used in the flipped clasroom to make the teaching more interesting and effective. Thismethodishighly useful and beneficialifthe designedtasks and materials created are innovative, interesting and motivated.In addition, flipped learningplays a vital role in improving the higher-order cognitive skills among the students.

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