Flipped Learning As A New Educational Paradigm: An Analytical Critical Study

Hanaa Ouda Khadri Ahmed
Faculty of Education - Ain Shams University

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Abstract

A literature on the flipped learning model has been reviewed. Therefore, the new form of education is worthy enough to be further studied. It is believed that flipped learning has gained great attention of many researchers as a result of what educators are implementing at their classrooms. The main objective of the paper is proposing an educational analytical critical framework for flipped learning that has powerful effects for who are concerned with educational development. The broad groundwork of literature on the flipped learning, described as the inverted learning, provided a foundation for the present study. This groundwork of literature used the term flipped learning and examined its effects on the pedagogy in education. The educational analytical critical framework of flipped learning developed in this paper includes components that reveals different views of flipped learning from just a "fashion" of adding more mechanism to the classroom to it is as a tool for shifting present pedagogy customized according to the individual needs of the learners instead of the whole group. The components of the framework are: instructional foundations, learning theories, Bloom's taxonomy, and conceptual framework of the flipped education that is discussed in the light of its connection to the educational foundations of flipped learning. Research method used was descriptive method and method of philosophical analysis.

Keywords: Flipped learning, reverse or inverted classroom, inquiry-based learning

1. Introduction

A teacher stands in the classroom, giving a lecture on and writing on a white board. Students quietly taking notes and copying down the homework assignment, which consists of reading from a given textbook and answering given questions at the end of the module. The teacher is aware that plenty of students do not understand the lesson however does not have

the time to meet with them individually during the 45-minute class period. The next day the teacher will assess the homework assignments. If students have questions, there won't be enough time to stay behind, because the class cannot fall behind schedule. There is a lot of information to cover before the end of the module. (Hamden et al., 2013)

With advances in internet and communications technology, it is becoming easier for educators to offer dynamic multi-media educational resources and the capability to support both content and assessment between instructors and learners. Cloud computing and services such as YouTube, Teacher Tube, and Screencast.com make the sharing of video resources increasing accessible for all educators and students. Technology educators predict that within a few years, tablet PCs, laptop computers or smartphones with wireless internet will be carried by nearly all students (Levy, 2010).

Flipping the classroom" has become the new phenomenon in the last several years in education. Its rise in the education world has been driven in most part by high profile publications in The New York Times, The Chronicle of Higher Education, and Science (Brame, 2013). In the past few years there has been a considerable increase in the use and interest in a new educational paradigm most generally known as the flipped education (Bergmann & Sams, 2012a). The flipped education includes any kind of exploitation of internet technology to leverage the learning in a classroom, so that a teacher can devote more time interacting and communicating with students rather than teaching. This is generally done by using teacher created videos that students view outside of class time. It is called the flipped class model because the whole classroom/homework paradigm is "flipped". In its simplest terms, what used to be classwork (the lecture) is done at home through teacher-created videos and what used to be homework (assigned problems) is now done in class.

Many researchers assured that flipped learning is very effective in developing the outcomes of learning. Assessments and response or adjustments individually to every student in-class create increasing of the understanding of course matters (Bergmann and Sams, 2012 a). Integrating the pre-class and in-class compel the students to have more responsibilities and obligations so that students participate the class more dynamically and the outcomes can be increased along with self-efficacy (Namik, Boae, and Jeong-Im, 2014). Doing assignments in class gives educators better insight into student difficulties and learning styles (Fulton, 2012).

As flipped learning has gained great attention of many researchers as a result of what educators are implementing at their classrooms, it should be investigated as a new educational phenomenon embodied in broad groundwork of literature .The current study aims at proposing an educational framework for flipped learning as a new educational paradigm through

examining the effects of flipped learning on the pedagogy in education, and analyzing the components of this educational framework in the light of its connection to the educational foundations of flipped learning.

2. Statement of the research problem

In the light of what has been mentioned, this study seeks to propose an educational framework for flipped learning as a new educational paradigm, to achieve this objective the study will answer the following questions:-

The main research question in this study is what is the educational framework for flipped learning as a new educational paradigm. This question is broken down as follows:

1. What are the elements and definitions of flipped learning and the related concepts?
2. What is the origin of flipped learning and how is it developed?
3. What are the fundamental features and benefits of the flipped learning?
4. What is the educational philosophy of flipped learning?
5. What is the new roles of the flipped educator and student?
6. What are the practices of flipped learning in educational institutions?
7. What are the criticisms and misconceptions of flipped learning?

3. Objectives of the Study

The main objectives of this study is to:

1.Define the concept of flipped learning and the related concepts.
2.Track the historical origins of flipped learning and show how it is developed.
3.Identify the fundamental features and benefits of flipped learning.
4.Analyze the educational philosophy of flipped learning.
5.Provide a characterization of the new roles of the flipped educator and student.
6.Discuss the present practices of flipped learning in educational institutions.
7.Analyze the criticisms and misconceptions of the flipped learning.

4. Significance of the study

1. This study may contribute to positive change in education, as it provides a researched-based educational foundations of flipped learning drawn from groundwork of literature on the flipped education.

2.The practitioners may benefit from this study by virtue of understanding some of the educational critical issues of flipped learning.
2.The findings of this study can serve as a guiding framework for designing and planning of flipped learning practices according to solid educational foundations.

5. Research method

The study has been contemplated on the existing literature. In addition, the study analyzed theoretical and practical discussions of flipped learning paradigm from previous studies through using descriptive method of research and method of philosophical analysis. Therefore, the study has proposed an educational analytical critical framework for flipped learning as a new phenomenon in the educational field. The study also has adopted the critical paradigm in which Knowledge is obtained by means of critical discourse and debate. The aim of the methodology in this paradigm is not to get to an acceptance of a discovery but to provoke self-reflection, reciprocal leaning participation and empowerment (Fossey et al., 2002).

6. The elements and definitions of flipped learning and the related concepts

There are numerous terms for similar pedagogical activities of flipped learning and the related concepts determined by the country of origin, or preference for one term over another. The terms flipped learning, flipped education, and inverted classroom are used in the literature, but all have to do with the shared idea of making a student ready for a session or more outside of class using one of a range of diverse instruments to permit the learners more free time in class to develop their skills and show proficiency of skills and knowledge. The following terms are discussed and expanded in different sections of this study.

6.1Flipped Education

Flipped education coined as inverting the classroom, this concept has been used in different ways, and these days is broadly known as flipped learning or flipping the classroom. Flipped learning is the learning style that shifts from lecturing in class into performing a variety of activities. These activities shall be self-learning ones, as a result the educator' role will change from being a communicant into a coach and facilitator whereas the lecturing shall be done via the technology media such as online-video podcasting or screen casting and more. The role of students in the flipped learning model is to use self-directed learning methods to retrieve the lessons at home or outside the school through flipped education tools such as

Edmodo, YouTube, Google Apps, Dropbox, Educreation , GlogsterEdu Screencast, Socrative, Teaching Channel, Twitter. The assessments to be carried on in a flipped education shall be various with the intention of assessing and measuring the students' accomplishment of each lesson's objective (Trairut, and Namon, 2015).

6.2 Flipped learning

Flipped learning is a mode of blended learning that involves any employment of technology to influence the learning in a classroom, so a teacher can have more time to interact with students instead of lecturing, thus there is an opportunity to provide more personal feedback and assistance to students, and in addition to receive feedback from their peers about the activities that they are performing and what they don't yet understand (Wiley and Gardner, 2013). Bergmann and Sams (2012a) discuss the benefits of integrating the flipped teaching method, which is a method created to deliver "instruction online outside of class and move 'homework' into the classroom, where students can discuss the topic in-depth" (Poore, 2013, p. 21). The Flipped Learning Network definition of Flipped Learning is the following: "Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" (Piehler, 2014).

I think that the flipped learning is a new approach of conducting learning process in which a student's homework is the customary practice that is viewed outside of class on a vodcast. Class time will be dedicated for inquiry-based learning which would comprise what would usually be viewed as a student's homework assignment.

6.3 Reverse classroom or inverted classroom

The reverse classroom or inverted classroom is based on a theory that has gotten foothold in the educational arena since 2000. It was defined by (Lage, Platt and Treglia, 2000 ,p. 32): "*Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa.*". Their study was one of the first to introduce the idea of employing multimedia and World Wide Web as a substitute of lectures. The idea behind reverse classroom is to permit students to study the materials at home and the homework assignments to be done in classroom with the support of the educators. The method gives students more freedom to learn according to the individual's own base and preferences and the educator can focus on the required outcome. The study claims that this

method is excellent for any type of individual learning style (Lage, Platt and Treglia, 2000).

(Trairut, and Namon, 2015)defined flipped classroom as it is a model of teaching that permits the students to study at home and do their homework at school through using technology multimedia as an educational management tool and examine the student's development. Consequently, the students must have adequate knowledge about information and communication technology with the purpose of allowing them to learn by themselves and have the possible capabilities of life flipped classroom which emphasizes on the students' achievement in creative thinking and the learners' achievement, in this regard technique and teaching methods of instructors should lead to creativity.

The idea does not restrain itself to the shallow change between lectures and homework but can be summarized as Table 1 indicates. Reverse classroom can be described as interactive collaborating group based learning activities in classroom and direct technology-based instructions for individual uses outside classroom. Through the technology it is possible to grant easy access to large number of information and especially in reverse classroom this should be adopted into education. By using technology to its full extent, the education can be reformed from memorization to conceptualization of knowledge. The costs are the downside for the use of technology, since the classroom should be equipped with the latest technology and the education would also rely on students' own devices (Bishop , and Verleger, 2013).

Table 1. Tasks in reverse classroom (Bishop , and Verleger, 2013).

Inside class	Outside class
Questions and answers	Video lectures
Group-based/Open-ended problem solving	Close-ended quizzes and problem solving

Accordingly, the reverse classroom is an alternative word for the flipped classroom. In this model, educators produce online video podcasts of their lectures with students viewing them and taking notes before attending class. Then students work in class on inquiry-based assignments which may embrace what is usually considered as homework. This totally alters the paradigm of teaching, thus creating the reverse classroom.

6.4 Inquiry-based learning

Prince and Felder (2006) defined inquiry-based learning (IBL) as a pedagogy which most excellently empowers students to undergo the processes of knowledge construction and the vital characteristic is learning motivated by inquiry, a student-centered approach, a shift to self-directed learning, and an active approach to learning. Inquiry-based learning belongs to the area of 'inductive' approaches to teaching and learning which start

with a group of observations or data to explain, or a multifaceted complicated real-world problem, and while the students analyze the data or problem they need facts, procedures and guiding principles. Prince and Felder (2006:123) state that inductive teaching includes a variety of teaching methods including "inquiry learning" , problem-based learning (PBL), case based teaching, project-based learning, and discovery learning. They categorize the teaching methods according to the context of learning and other aspects, such as the extend of students responsibility for their learning and the practice of group work.

The main objective of Inquiry-based learning is to develop valuable research skills of students and to prepare them for life-long learning, so students should accomplish learning outcomes that embraces critical thinking, the competence for independent inquiry, responsibility for their own learning and intellectual development and advancement (Lee et al., 2004). Inquiry-based learning extends from a rather planned and directed activity, specifically at lower levels (where the teacher may present the problem and give direction to solve it), through to independent research where the students pose the questions and figure out how to research them. (University of Sheffield 2007; Spronken-Smith et al., 2007).

Inquiry-based learning is the science and art of creating thought-provoking situations in which students profoundly perceive and question phenomena; propose clarifications of what they observe; design and conduct experiments in which data are collected, classified, and analyzed to come to conclusions to back-up or dispute given theories or propose solutions to a giver problem.

7. Brief history of the flipped education

The concept of the flipped classroom is not new (Baker, 2000; Strayer, 2007). The concept has developed over time. Before flipped classrooms, distance education used educational videos to present content. In 1995, with the emergence of an online content management system, Baker was capable of placing lecture notes online, stretch out classroom conversations and manage online quizzes (Strayer, 2007). Class time was then expanded for students to do applications of the content and answer quizzes. Baker introduced the concept to conferences between 1996 and 1998, and started to mention to the method as "The Classroom Flip" (Baker, 2000). At about the same time, Lage, Platt, and Treglia originated and implemented a similar procedure. They referred to the concept as "The Inverted Classroom" and similarly had the anticipation that students would view lectures earlier of class, and after that spend class time explaining difficult ideas and concepts and working together collaboratively in small groups (Lage, Platt, & Treglia, 2000). They provided a variety of tools to

their students to get first the introduction to material outside of class, comprising textbook readings, lecture videos, and printable educational slides (Johnson & Renner, 2012). It is often credited to science educators Bergmann and Sams the contemporary use of online videos to complement face-to-face instruction (Pink, 2010).

Jonathan Bergmann and Sams in Woodland Park, Colorado in 2007 (Bergmann, 2011) developed the contemporary method of exploitation of online videos to flip education. Bergmann and Sams were searching for a technique or approach to provide lectures to their students who missed classes because of any accepted reason Jon Bergmann recalls:

> "In the spring of 2007 Aaron was thumbing through a technology magazine and showed me an article about some software that would record a PowerPoint slideshow including voice and any annotations, and then it converted the recording into a video file that could be easily distributed online. As we discussed the potential of such software we realized this might be a way for our students who missed class to not miss out on learning. Thus, we began to record our live lessons using screen capture software. We posted our lectures online so our students could access them. When we did this, YouTube was just getting started and the world of online video was just in its infancy. In all honesty, we recorded our lessons out of selfishness. We were spending inordinate amounts of time re-teaching lessons to students who missed class, and the recorded lectures became our first line of defense". (p.1)

They developed a new movement in education called the flipped classroom method. Lately, articles on the flipped classroom have emerged in The Economist (Flipping the Classroom, 2011),USA Today (Dell Cava, 2012), the Washington Post (Strauss, 2012) , and The New York Times (Rosenberg, 2013).

In 2010, Pink wrote about Bergmann and Sams method and named it the flipped classroom and the term has stuck. In March of 2011, Salman Khan used the term "flipping the classroom" in his TED talk (Khan, 2011). Since that point, interest in the flipped model has grown exponentially with new articles, press, and blogs on the flipped model appearing almost daily. This has generated a brand-new perception in education. In early 2010, a professional learning network was established for educators concerned with flipped education. In May, 2013, the network has over 16,000 members all over the world (Overmyer, 2013). This network presents both pedagogical and best-practice consultation and discussions, in addition to practical and pragmatic support on technology and implementation.

Recently, Students grew up on new media technologies are no more enduring filling out worksheets and listening to lectures (Collins &

Halverson, 2009). With developments in internet and communications technology, it turned out to be effortless for educators to present active and energetic multi-media educational resources and the proficiency to assist and enhance both content and assessment between instructors and learners. Cloud computing and services such as YouTube, Teacher Tube, and Screencast.com make the distribution and circulation of video resources growing and become easily reached for all educators and students. Technology educators forecast that within a few years, tablet PCs, laptop computers or smartphones with wireless Internet will be carried by almost all students (Levy, 2010).

8. Fundamental features of the flipped learning

Although there are no two identical flipped classrooms, they all have common characteristics, as expressed clearly in The Flipped Class Manifest (Bennett, Bergmann, ,Cockrum, ,Fisch, Musallam, Overmyer, Sams, & Spencer, 2012):

- Dynamic, active and deliberate transfer of certain selected parts of the information delivery to outside of the classroom with the intention of freeing up time to take advantage of the face-to-face interaction in school. This is frequently done with teacher created online videos (also referred to as screencasts or vodcasts).
- Educators turn out to be guides to understanding instead of distributors of facts and students come to be active learners instead of repositories of information. Making a long-lasting archived and documented tutorial of class content. Advanced students may never watch the videos again. All students can re-watch the video as much as needed. This frees more class time for data collection, active collaboration, and application.
- Learners have instant and straightforward and access to any subject matter when they have need of, leaving the teacher with more opportunities to expand on higher order thinking skills and enrichment.

9. Possible benefits of the flipped learning

The flipped learning provide numerous benefits for instruction that are not achievable with traditional instruction. Advocates claim that the videos make the most of class time to advance the deeper, inquiry-based learning (Flipping the classroom, 2011).

Supporters of the flipped education claim that it is in what way a teacher makes use of the freed class-time that is extremely important (Bergmann & Sams, 2012a). Offloading direct instruction to videos permits

educators to reassess by what method they can make best use of individual face-to-face time with students. Time becomes existing for students to collaborate with peers, involve more profoundly with content, and be given instant feedback from their instructor (Hamden, McKnight, McKnight, & Argstrom, 2013). The most significant benefit of the flipped class model is to lengthen teacher-to-student and student-to-student interaction during class time. Educators using the flipped method declare that the best benefit is that for the first time in their teaching careers, they have some one-on-one contact with every student during every class period (Moore, Gillett, & Steele, 2014). Perfectly, the flipped model is an integrating of direct instruction with inquiry-based learning. This permits more time for the development of 21st century skills.

Evidence has suggested that students in most cases have a preference of the flipped classroom over the traditional lecture style (Bergmann & Sams, 2012a; Hamden et al., 2013; Lage, Platt and Treglia, 2000). As well as the students accomplishing academic gains, educators and professors have discovered that the flipped classroom pedagogy has advanced their instruction and has restored the “fun” in teaching (Brown, 2012; Hamden et al., 2013). Another benefit of flipped education is that the educators use the language of today's students (Bergmann & Sams, 2012a, p. 20), who became accustomed to use the web and social media for information and interaction.

10. The educational philosophy of flipped learning as a new educational paradigm

10.1 The flipped education paradigm

The flipped education paradigm is one emerging and evolving model for making the most of internet technology to sustain education in which events that traditionally happen during the classroom time happen during the students’ own time, while work that is normally believed that to be an individual homework takes place in a collaborative way in the classroom. Such inverted classroom is encouraged by a lot of elements containing dedicating class time toward encouraging critical thinking and student collaboration (Lage, and Platt, 2000), reinforcing dissimilar student learning styles (Lage, Platt, & Treglia, 2000), and focusing the needs of students who have grown up with cyber- media technology. Flipped education paradigm keeps up extreme promise toward increasing student learning, granting advantages over traditional education by allowing students to individualize their learning, research in addition propose that students may rate online education lower than standard classroom contexts in measures of content, interaction, participation, faculty preparation, and intercommunication.

The flipped learning changes the typical homework model:

> "A 12-year-old sits at the kitchen table with a paper filled with numbers, letters, and shapes in front of him. He sort of remembers what his teacher said earlier that day about the Pythagorean Theorem, but not exactly. His parents are of no help, having learned this stuff 30 years ago. He's alone, and pretty much stuck." (Pelham, 2012, p. 1)

Flipped learning permits the student to learn the Pythagorean Theorem at home in advance through watching a video created by his teacher. The student can watch the video when he wants, pause it, or rewind it, according to his needs. The next day in class, he will then be able to practice working the theorem together with his classmates and his teacher. He would have the answers for the questions he possibly could not answer on his own at home (Bergmann & Sams, 2012a; Pelham, 2012).

Bergmann and Sams (2012) stated that time can be entirely restructured in the flipped classroom.

> "The time spent in a traditional classroom with guided and independent practice is reduced to 20-35 minutes after the review of the previous night's homework and the lecture of the new content. However, in the flipped classroom the time for guided and independent practice is increased to 75 minutes due to the structure of listening to the lecture portion of class to learn new content the night before." (Bergmann & Sams, 2012a)

I think that the procedures that educators are implementing to flip the course content out of their classrooms and to shift instruction within their classrooms are revealing the changing landscape of educational structures. This changing landscape concentrates deeply on the needs of different learners, differentiates instruction, and modifies resources to fulfill all the various needs of all learners. Therefore, flipped learning necessitates a shift from a teacher-centric to a student-centric learning environment, a shift to a blended environment, a shift in educational practices that concentrates on differentiated and mastery learning, and dynamic and collaborative learning arrangements whereas students are deeply engaged in their learning.

10.2 The four pillars of flipped education

The Flipped Learning Network and Person's School Achievement Services have identified four pillars of effective flipped learning. These four pillars of F-L-I-P™ are Flexible Environment, Learning Culture, Intentional Content, and Professional Educator (Hamden et al., 2013).

The first pillar illustrates flexible and adaptable learning environments. Educators frequently readjust their classrooms with the intention of being more encouraging to collaboration. This flexible and

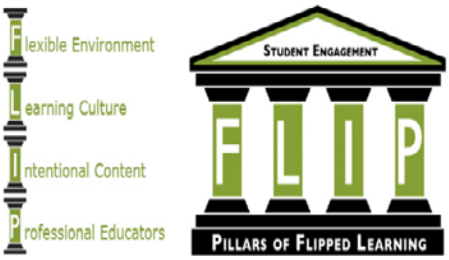
adaptable learning environment empowers students to select when and where they want to learn and in what method such as group work, independent study, research, performance, and evaluation. Consequently, the flipped class develops into a place where learning objectives are explored in greater depth and learning opportunities are enhanced. Educators take full advantage of their most valuable element in education that is time, via interacting with students, and testing out student understanding. Flipped educators help students discover topics and learning objectives in greater depth and challenge them to obtain the higher order thinking skills (Hamden et al., 2013).

The second pillar, Learning Culture, depicts a shift from students being the recipient of teaching to the "center of learning". In the traditional teacher-centered model, the teacher is the foremost source of information, the teacher is the "sage on the stage" (King, 1993), that is the teacher is the only content authority who delivers information to students, in most cases through direct instruction lecture. In the flipped learning model, there is a purposeful shift from a teacher-centered classroom to a student centered approach, where in-class time is devoted for face-to-face classroom interactions to check student understanding and synthesis of the material. Flipped educators support students discover topics more thoroughly using student-centered pedagogies aimed at their readiness level or area of proximal development, where they are challenged but not so much in order that they are discouraged (Vygotsky, 1978).

Intentional Content is the third pillar and describes instructional decisions that must be made by the teacher. Those decisions contain what content to teach through video, and what materials students are permitted to investigate on their own. Hamden et al., (2013) declared that flipped educators use intentional content to take full advantage of classroom time with the intention of utilizing a variety of methods of instruction such as peer instruction, active learning strategies, problem-based learning, or master or Socratic methods, according to grade level and subject matter. If they keep on teaching adopting a teacher-centered approach, nothing will be achieved. (Hamden et al., 2013, p. 6).

The last pillar, Professional Educators, perhaps be the extremely important pillar it describes the importance of the role of the educators in the flipped classroom, even though their role is "less visibly prominent". A flipped educator is required to decide when and how to shift direct instruction from a whole group of students to the individual learner. They must be aware of the methods of maximizing their time with students in the classroom (Hamden et al., 2013).

Figure 1.1. The four educational pillars of flipped learning



Visual depiction of The Four Educational Pillars of Flipped Learning showing support for student engagement. Copyright 2014 by the Flipped Learning Network.

10.3 Learning theories of flipped education

Constructivist learning is the philosophy that learning is the result of the construction of abstract concepts in the mind to describe and represent reality (Bruner, 1961). Constructivism debates that making use of communicating and interactive activities in which learners play engaged and active roles can motivate learning more effectively and fulfil all intents and purposes of the learners than activities where learners are inactive. The flipped education and online videos strengthen the principles and assumption of constructivism by releasing class time for inquiry-based learning (Brandt, 1997). The flipped learning backed-up by the constructivist theory, should empower learners to involve in communicating, imaginative, and collaborative activities during knowledge construction (Kim & Bonk, 2006). Bloom also drew attention to the need to concentrate on higher level learning goals, not simply on basic skills. He indicated:

> "I find great emphasis on problem solving, applications of principles, analytical skills, and creativity. Such higher mental processes are emphasized because this type of learning enables the individual to relate his or her learning to the many problems he or she encounters in day-to-day living. These abilities are stressed because they are retained and utilized long after the individual has forgotten the detailed specifics of the subject matter taught in the schools. These abilities are regarded as one set of essential characteristics needed to continue learning and to cope with a rapidly changing world". (Bloom, 1978, p. 578)
>
> Bloom's Taxonomy classifies diverse domains of learning, from the basic recalling of facts to applying knowledge which generates something new. Every domain has different levels, below is the revised version of Bloom's taxonomy for cognitive learning (Anderson, 2000):

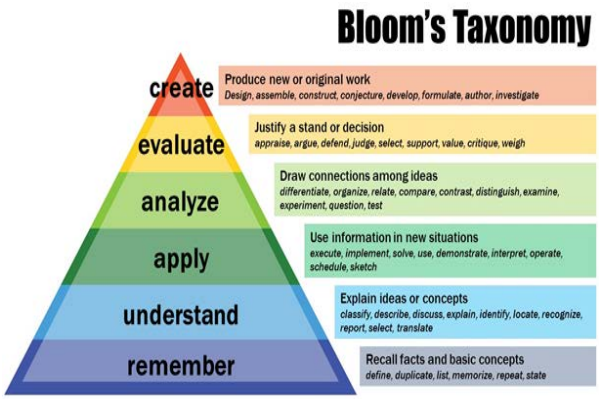


Figure 1.2. A revised version of Bloom's Taxonomy for cognitive learning.

Applying Bloom's revised taxonomy to flipped learning, students are doing the lower levels of cognitive work (remembering and understanding) outside of class, and focusing on the higher types of cognitive work (applying, analyzing, evaluating, and creating) in class, where they have the encouragement of their peers and instructor (Brame, 2013). The flipped sitting permits a student to attain a substantial basis of a topic, the understanding, before a session, in order that other activities, assessments and consolidation activities can build on the developing the higher skills when a teacher is present to support the student. This can be compared to the traditional method of teaching where the basic level skills are often the center of attention of classroom sessions and students are left to work on the higher levels skills in their own time with homework and additional exercises.

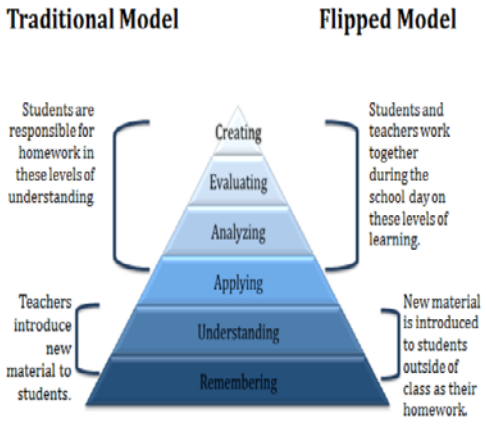


Figure 1.3. Bloom's Taxonomy related to traditional and flipped learning.
Source: (Bloom, 1956).

The roots of flipped learning lies in social constructivism. The flipped learning is deeply connected to problem solving, active learning,

inquiry learning, and interpersonal communications (Jarvis, et al, 2014). Flipped classroom supports students to learn new knowledge that is required to be connect to past learning, by doing this the students have to reconstruct their view of the world. They communicate with their peers in the classroom that eventually generate deeper learning. The process of learning as Piaget and Vygotsky rationalize it, is obvious. Nonetheless isn't that what an education ought to do, move students forward to contest with others at the same time accommodating to the world around them and concurrently being impressed by parents and friends accordingly the social constructivist theory without doubt fits with the benefits of the flipped learning (Jarvis, et al, 2014).

Social constructivism in classroom suggests altering educator's role to instructor that guides the students. Constructivist classroom has many traits related to social context, such traits are working with peers to solve problems and learn skills. Constructivist classroom doesn't weaken the active role of the teacher. The role of the teacher is altered to support the students to generate the knowledge themselves. Accordingly, consistent with constructivist learning theory the role of the teacher is to present the required information and tools for the students, so they could develop their ideas and draw conclusions (Ozer, 2004).

The foundation of social constructivist theory is based on a Vygotsky's "Zone of Proximal Development" (ZPD). Vygotsky assumed that whenever a student is at the zone of proximal development for a specific task, providing the suitable support will give the student sufficiency of a "boost" to accomplish the task (Vygotsky, 1978). Once the student, by the virtue of support, becomes skilled at the task, support can then be removed and the student will then be proficient enough to accomplish the task once again completely on his own. Vygotsky in addition considers interaction with peers as a successful means of developing skills and strategies. He recommends that educators should employ collaborative learning exercises where more skillful learners help their less competent peers to develop within the zone of proximal development (McLeod, 2010). This perspective agrees with the philosophy of the flipped learning, where a teacher can make the most of freed-up class time for collaborative work and individualized support of tasks.

10.4 The pedagogical framework for flipped learning

The pedagogical framework for flipped learning model comprises the emerging foundational component: the student is central to the learning, assisted by an active, blended learning environment that aims at providing an individualized, mastery learning environment for every student, what one shifts within the classroom and what one flips out of the classroom. (Bruff,

2013). The shift of the pedagogical paradigm from 20th Century thinking and practices to 21st Century teaching and learning practices, namely, from lecturer and giver of knowledge to facilitator and supporter one who is required to focus beyond traditional arrangements and focus more on the educational benefits of shifts.

10.4.1Blended learning environment

Shifting from traditional practices contains the integration of technology into instructional practices. Blended learning environments partly include some online delivery of content and instruction and they provide the opportunity for students to have control over time, place, and pace of their own learning from classroom. This control over time, place, and pace with digital technologies creates opportunities for students to learn and to take responsibility for their own learning (Staker & Horn, 2012; Hamden et al., 2013). The flipped classroom is one model of this blended environment.

10.4.2 Student-centric environment

Due to the flipped learning model is based less on teaching and more on learning, so developing a flipped learning environment necessitate a shift from a teacher-centric environment to a student-centric learning environment. In this correctly structured environment, students are engaging with content, engaging with their classmates, and taking control over their own learning. (Hamden et al., 2013; Tomlinson, 1999).

10.4.3 Shifts in pedagogical practices

The shift to student-centric learning environments requires new pedagogical practices other than often in traditional classes such pedagogical practices are individualized learning, differentiated learning, active learning, cooperative learning, collaborative learning, and mastery learning (Prince, 2004; Tomlinson, 1999).

10.4.4 Flipping content out

The reversal of what classically happens in the classroom with what happens outside the classroom is the heart of flipped learning. Educators designate the “lecture” part of their content for students to watch outside of class time. Reversing instruction in this way permits more student-teacher interaction to explain misconceptions and wrong idea and give real-time feedback. It in addition allows for more in-class time to integrate student-centric pedagogies (Bergmann & Sams, 2012a; Goodwin & Miller, 2013; Finkel, 2012).

10.4.5 Pedagogical Foundations

One essential foundation of flipped learning is active learning in which the student is an active participant in his own learning. (Hamden et al., 2013), active learning is broadly defined as any instructional method that involves students in the learning process making them reflecting upon ideas and how they are using them (Michael, 2006; Prince, 2004). This process involves an interaction between teacher, student, and content (Marzano, 2007). Such active learning strategies comprise inquiry-based learning, problem-based learning, cooperative and collaborative learning, technology-enhanced learning, and peer instruction (Michael, 2006; Prince, 2004).

Carroll and Bloom focused on the individualistic needs of individual learners instead of the needs of the whole group. Bloom states "individual differences" between learners unquestionably exit, so the fundamental task is to create strategies to take into consideration those differences (Bloom, 1971, p. 49). However, conventional teaching strategies takes account of only whole group instruction with exams given regularly to allocate grades (Bloom, 1984). On the contrary, Bloom discovered that an educator could reach all learners in a classroom if he makes use of formative assessments, feedback, remedial procedures, and if he provides individual instruction to the individual student (Bloom, 1984). According to Bloom (1968), this is mastery learning; "to individualize instruction within the setting of normal group-based instruction, mastery learning strategies depend on the continuous feedback information of both the educator and the learner.

Guskey (1990) integrates mastery learning with other advanced pioneering strategies such as cooperative learning. In this blend Students in cooperative learning and mastery learning work with their teacher as a team on the same side to accomplish certain learning goals and then master what is to be learned (Guskey, 1990, p. 36).

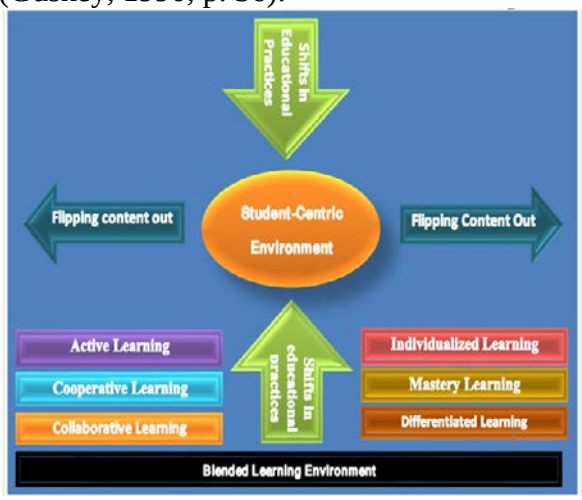


Figure 1.4. Pedagogical Framework for Flipped Learning.

10.5 The new role of the flipped educator

One of the significant components in the flipped education is the role of the educator. The flipped education necessitates that the educator build an inquiry-based teaching environment, where the face-to-face class time moves from a teacher-centered arena, to a student-centered arena (Bergmann & Sams, 2012a). The traditional educational system was established following the idea of the factory model of management with the idea of top-down instruction, and "sage on the stage" educators who create outputs, or students who pass standardized tests (Howell, 2013). However, a paradigm shift is taking place where learning emerged to be about students and their requirements. Since the turn of the century, a new wave of educational reforms has emerged (Cheng & Mok, 2008, p. 374). The new wave has moved from a teacher-centered paradigm to a student-centered one. Cheng and Mok (2008) explained this new paradigm as one where learning had better to be tailored to meet the needs of the individual student. It is one where the emphasis of learning shifts to how to learn, create, think, and develop with the eventual goal being lifelong learning. In a student centered classroom, educators act in an interactive manner, mediating the environment.

Flipped educators have approved the shift from a teacher-centered classroom to a student-centered classroom, and stress that shifting from "sage on the stage" to "guide on the side" is a fundamental component of flipped education (Baker, 2000; Bergmann & Sams, 2012a; Musallam, 2011). However, many educators possibly will have targets of developing a student-centered flipped education, many do not have the training or experience to put this into effect in the classroom.

Educators are required to examine, modify, and adjust their strategies in the classroom whereas students have various learning styles and they do not have the same academic level. Additionally, there are new responsibilities for flipped educator which includes.

> "Embracing diversity, individualizing instruction to include differentiating instruction based on student interest, learning styles, and social and emotional development of their students; collaborating with their colleagues; and, utilizing technology to help student's access content, to learn how to think critically, solve problems, communicate, and collaborate". (North Carolina Professional Teaching Standards, 2013).

In the flipped learning model, time in class will be dedicated for students for giving them the opportunities for giving them more control over their learning, collaborating with their classmates on certain topics, achieve certain objectives, involve more profoundly with content, practice skills, and receive feedback. Consequently, flipped learning that implement well-

founded pedagogical practice, models such a shift to an individualized, customized flexible structure that is tactical and deliberate in making students to be college- and career-ready.

10. 6 The new role of the flipped student

The potential influence of the flipped learning is concentrated on the consequences of preparing learners with direct instruction outside of the classroom, before taking delivery of in class instruction. Research on the consequences of priming on memory points out that when learners are exposed to specific stimuli their memory of that stimulus is improved because of their former experience (Bodie et al., 2006). By giving students direct instruction outside of the classroom, they are basically well-informed for the active learning tasks. There are individual differences concerning what stimulates and does not stimulate a learner (Jones, Valdez, Nowakowski, & Rasmussen, 1994). Such differences may be a result of former experiences of education, personality and preferred learning styles (Hillier, 2005). For example some students do not work well in the morning but work well in the afternoon. Some learners have an obvious preference for the visual or auditory mode, some answer back better than others to praise than others, some have longer attention durations than others; briefly, every single student has a personal and exceptional learning style.

11. Practices of flipped learning in educational institutions

Institutions of higher education have recorded flipped learning as an effort to increase achievement (when comparing a traditional course to a flipped learning course) and student engagement in courses have been taught (McGivney-Burelle & Xue, 2013; Love et al., 2013; Lage, Platt and Treglia, 2000). Much of their work has pinpointed the ability to provide preference for students in how they approach course content through individual learning styles (Lage, Platt and Treglia, 2000). In addition, professor Eric Mazur at Harvard University coined the term “peer instruction” and created his version of the flipped classroom in which he demanded that the students should read their textbooks before class and he has structured his class sessions around small-group discussions of interesting and important questions about certain topic (Bruff, 2013).

As a result of the growth in access to technology in America’s schools and there are many who are experimenting flipped classroom, interest in the flipped classroom in secondary education has increased. Many prefer learning through communicating and interactive process using video with generations of students who have been using computer screens and other visual media in their daily life (Lambert, 2012). Many are experimenting with flipped learning using videos that educators have created

(Bergmann and Sams, 2012a). Others are experimenting using videos created by others such as the Khan Academy that is a non-profit organization that hosts a library of thousands of videos of everything from physics to history (www.khanacademy.org).

It should take into consideration the reality that the educational paradigm of flipped learning is more than a "fashion". Flipped learning as an educational tool has the ability to exploit technology to change where, when and how students learn. The foremost concern must be given to the outstanding shifts that happen within the classroom. Teachers— new and experienced — should have intensive training on the educational shifts before applying flipped learning. Teacher training programs should take great consideration of student-centric learning and tailoring instruction to meet individual student needs. In addition, collective inquiry or action research in which teachers review their practices and learn how to improve their performance.

12. Criticisms and misconceptions of the flipped learning

The most conventional criticism of the flipped education is focused on that it takes an ineffective method (in-class lecture) and merely makes good use of technology to move the problem (online lectures). Supporters of the flipped education debate that it is how a teacher makes good use of the newly freed class-time that is most important and significant (Bergmann & Sams, 2012b). When educators offload their direct instruction to videos, this action give them the opportunities to reassess how to make the most of individual face-to-face time with students. Time becomes available for students to team up and collaborate with peers, involve more profoundly with content, and get instant feedback from their instructor (Hamden, McKnight, McKnight, & Argstrom, 2013).

The highly significant feature of the flipped class model is to expand teacher-to-student and student-to-student interaction during class time. Flipped educators express that the best advantage is that they have some one-on-one contact with every student during every class period (Moore, Gillett, & Steele, 2014). Appealingly, the flipped education is a mixture of direct instruction with inquiry-based learning. This permits more time for the development of 21st century skills, such as critical thinking and problem solving, creativity and innovation, collaboration, and self-direction (Framework for 21st Century Learning, 2010).

The Flipped Manifest (Bennett, et al., 2012, p.1) states that:

Practitioners of the different flipped classroom models are continuously fine-tuning, varying, refusing, adding to, and attempting to promote the model via immediate experience with how effective it is for pupils. Flipped classroom model is not about "record your lecture once" and

you're done; it's just one component of a comprehensive instructional model that embraces direct instruction, inquiry, practice, assessment and much more. In addition, it permits educators to contemplate on and develop excellence and attractive learning opportunities and alternatives for creation, and application of content instead of time filling assignments.

Flipped learning nevertheless has some misconceptions. One of them is that the flipped model is about substituting educators with videos (Nochese, 2011). Khan Academy, which is a repository of over 4000 videos made by Salman Khan and whose videos have been viewed over 200 million times. The goal of Khan Academy is to offer better education to anyone anywhere by providing a free world-class education to anyone anywhere (Khan, 2011). Consequently critics called into question the need for educators. Salman Khan has stated that his videos permit the teacher to concentrate on higher-level learning activities, such as managing interactive simulations and labs with students, carrying out individual interventions, and simplifying peer-to-peer learning. Another misconception is about that flipped learning is similar to an online course (Fink, 2011). Although online learning is-and will- keep on to keep an important place in the education field, it should be taken into consideration that the flipped model does not alter the amount of face-to-face time that a student spends in a classroom when compared to a traditional classroom.

13. Conclusion

I believe that shifts—shifts in learning and shifts in instruction is the fundamental core of flipped learning. The fundamental assumption of flipped learning is shifting the traditional lecture portion of instruction to a task the student does out of class time as “homework”. However, the deliberate shift for flipped learning is to provide students the interferences they need through student-centric, blended learning environments.

In the flipped learning paradigm the learning activities of students are inverted, student endeavors to comprehend the content at home and teach at class. It means that students clarify their understanding to teacher or other students to evaluate their pre-class achievements. Currently, many classes in universities have implemented flipped learning model. Flipped learning comprises what Bloom’s taxonomy struggles for in education. That is to move and involve students through the higher-order thinking skills. The in-class activities along with projects and assignments being completed in the flipped classroom allow interaction between teacher and students and students and peers explaining the Social Learning Theory of Bandura and implementing peer instruction into the classroom. Making the students presentable outside the classroom allows better and enriched recall of stimuli as a result of their preceding experience with the stimuli permitting the

student to involve in conversation when in the classroom. Flipped learning also supports the Constructivist Theory of Bruner through engaging students in projects, debates, cooperative learning groups, and peers learning from each other, the flipped classroom empowers students to constitute their concepts and ideas.

Additionally, Flipped learning heavily relies on the social constructivist theory that deeply focuses on the importance of the social context for gaining cognitive information through helping learners to have more chances for research, self-study, interaction, collaboration and acquiring the necessary skills for further knowledge construction.

The flipped learning has been seen to be an important pedagogical approach in increasing student achievement, improving student motivation, providing more time in the classroom for educators and students to ask higher order questions and receive on the spot feedback.

Future research should attempt to demonstrate how to plan and design educational practices and applications of flipped learning that comprises what Bloom's taxonomy struggles for in education. In addition, future research should focus on how teachers can make good use of the newly freed class-time that is offered by flipped learning.

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