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Abstract

The aim of this paper is to review the flipped classroom to find out the definitions, meaning, concept, features, strategies, benefits of flipped classroom and limitations to the flipped classroom in the literature as well as in the researches, for this purpose author reviewed many resources on the internet, research databases sites and found extensive information about the same, author also tried to categories the information into different points to make it easy to understand the teacher community. In NEP 2020 use of innovative methods in Indian classrooms is highlighted. The students as well as teachers are not using flipped classroom effectively because of rigidity in the previous structure, now it is the demand of time, which one has to follow.

Keywords: *Flipped Classroom, Inverted Classroom, Reverse Instruction, flipped-learning method*



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Introduction:

Generally, the teachers start teaching in the classroom and introduce any new topic in the classroom only, so the students come across to the learning material first time in the classroom setting. But what if, the teacher is introducing the learning material before starting actually teaching in the classroom, this sounds better. We all well aware about the textbooks, and some students buy the textbooks and read them before the school starts, now we don't have to buy the books, e-books are easily available without a cost. so somehow the student who reads the lessons before teacher teaches in the classroom, would be very well aware about the teaching points, and his/her understanding will be more fast than others. If some part which he didn't understand in first reading and even if it is not discussed or addressed well by the teacher then he/she can ask the questions to his/her teacher in the class.

In traditional teaching method teacher was important, teaching plays a vital role, no matter whether the student is learning or not? In flipped classroom, learning is very important than teaching and the process is student centered or learner centered, no matter where the learner learns, in the school, colleges or at home, after teachers teach in the formal setting in

the classroom or before the classroom teaching, at home in the non-formal settings. Learning is focused in the flipped learning strategy.

The possibilities of learning outside the classrooms are increased because of the two revolutions, one is technological, this is the era of technology, it is readily available to everyone in the world on a large scale, and second is free application software. These two have shifted the educational paradigm in terms of content, pedagogy and practice. Bishop and Verleger (2013) stated the ability of technology to amplify and duplicate the information at extremely low cost, while free application software allows content to be accessed easily and openly on the Internet.

If this is the fact, that students can access any information, in any format, at any time and we as teachers could not control the students about what they should read, which videos should they watch or how much time and when, but we can channelize their online activities by giving them proper direction. Through the internet if they are learning something, then that will be very helpful to them to be master that material in a very less time. So the answer is flipped classroom or learning with the technology or inverted education, whatever may be the term given to this approach, use of this is inevitable.

Historical background of Flipped Classroom: The flipped teaching approach has been used historically; however it hasn't always been called that. In literature-based courses in particular, professors assigned readings as assignments and conducted in-class discussions on the material. Some educators were individually looking for student-centered active learning teaching strategies in the late 1990s. One of the pioneers of flipping teaching is Dr. Eric Mazur, who is renowned for his peer instruction. Eric Mazur is the Balkanski Professor of Physics and Area Dean of Applied Physics at Harvard University. Mazur has noticed a fantastic response from his pupils since implementing the flipped approach in his classroom, both in terms of their dispositions and their academic performance. Dr. J. W. Baker created a teaching strategy that involved giving students lecture material as homework and class time to learn it. A new teaching approach was made possible by advancements in educational technology at the time, including easy access to multimedia and faculty development of multimedia. The phrase "Inverted Classroom" was created by Lage et al. and Baker, who also dubbed it "Classroom Flip." With this newly discovered mode of instruction, lectures were delivered outside of the classroom while the students used their newly acquired knowledge to

participate in activities that aimed to further their comprehension of the subjects. Throughout the latter half of the 1990s, learning management systems like Blackboard and WebCT were one such tool that was crucial. In order to reach and further develop concepts for their students, Jonathan Bergmann and Aaron Sams videotaped their chemistry lectures, posted them to YouTube, and required their students to watch the videos ahead of time. Students benefitted from better preparation and interactions that increased discussion. The original proponents of the flipped classroom model were two chemistry teachers from high schools, Jonathan Bergmann and Aaron Sams. They covered a few justifications for teachers to think about flipping in their 2012 book *Flip your classroom: Reach every kid in every class every day* (p. 20–33): Salman Khan uploaded YouTube videos at the same time to teach his young family members math remotely. Tens of thousands of students were seeing these films each month. His method of instruction was so well-liked that it gave rise to the nonprofit Khan Academy, which offers all students free lessons. Students often favour instructor-generated resources that seem to improve their learning, despite the fact that resources are publicly available through Khan Academy and comparable sites.

Definition of Flipped Classroom: Flipped classroom 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” The Flipped Learning Network, (2014).

A flipped classroom is a type of blended learning where students are introduced to content at home and practice working through it at school. This is the reverse of the more common practice of introducing new content at school, then assigning homework and projects to be completed by the students independently at home.

A flipped classroom is an instructional strategy and a type of blended learning, which aims to increase student engagement and learning by having pupils complete readings at home and work on live problem-solving during class time.

A flipped classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content often online, outside of the classroom.

In a Flipped Learning setting, teachers make lessons available to students to be accessed...Teachers can deliver this instruction by recording and narrating screencasts of work they do on their computers, creating videos of themselves teaching, or curating video lessons from trusted Internet sites. Hamdan, McKnight, McKnight, & Arfstrom, (2013), p. 4

Flipped Learning traces its roots in active learning, a process that utilizes various activities which engage the learners at both individual and collaborative levels, transferring the learning responsibility to their own ability and pace Trantafyllou & Timcenko, 2014; Tucker, (2012).

A Flipped Classroom is a blended learning strategy and learner-centered approach that fundamentally utilizes technology to impart education. The concept involves employing online tutorials and Learning Management Systems (LMS) to teach academic subjects and convey information. Unlike the traditional teacher-student lecture style, where an educator teaches most part of the lessons directly to students from textbooks inside the classrooms and controls the full flow of class discussions, the flipped classroom model differs by encouraging learners to do research and prepare beforehand on topics at home prior to their teaching during the class periods and allows students to collaborate via online discussions.

The flipped technology resembles close to (or) involves concepts like Smart classroom, LMS, and Virtual Reality. Adapting to this teaching and learning methodology reduces the work of instructors, improves classroom management, and lessens homework problems arising in classrooms as students come prepared on the topics from home. This enables teachers to focus on in-depth teaching methods, skill development activities, and problem-solving concepts. Moreover, the student-teacher collaboration in the flipped classroom becomes more personalized, and this enables the students to effectively show interest and involve themselves in learning.

Meaning of FLIP: Hamdan et al. (2013) mentioned that Flipped Learning is built on four pillars. These are factors that need to be met for the method to occur.

F: Flexible environments: Teacher may be use flexibility in many aspects such as physical environment of the classroom, or in terms of learning resources, learning goals, learning outcomes, learning styles, learning activities, individualized learning or group learning, in terms of assessment tools, etc.

L: Learning culture shift: There is a big shift in the teaching-learning process, from teacher centered methods to student centered methods, from chalk and talk method to activity based learning. The students have to acquire the knowledge and skills on their own while teacher has to help them to acquire it. “Students move from being the product of teaching to the center of learning, where they are actively involved in knowledge formation through opportunities to participate in and evaluate their learning in a manner that is personally meaningful.” (Hamdan et al., 2013, p. 3). This shift also transforms the role of the teacher in the learning process – from being a sage to serving as a guide as a facilitator. (Szparagowski, 2014; Bergmann, Overmyer, & Wilie, 2013).

I: Intentional content: No doubt the learning process is intentional having specific goals and objectives, to achieve these objectives teacher has to plan learning experiences and execute them in the class. In flipped classroom, learning material, experiences are provided to the students in the form of video lectures, along with the same teacher has to support his video lectures with other resources, so the teacher has to choose learning resources or YouTube videos deliberately. “Evaluate what content they need to teach directly” (Hamdan et al., 2013, p. 3).

P: Professional educators: Flipped classroom approach should be used professionally in the system. Teacher has to decide that when to use flipped learning model and when to use direct instruction model, as per the learning goals, as per the need of content etc. Flipped learning will not replace the teacher from the education system, as the technology or machine learning has not replaced teacher from education system. So how teachers use technology effectively that is important, technology has changed the role of teacher is true, but replacement is impossible. Teacher will be thrown away from the system is true to them who are not adapting technology in their teaching. Gojak (2012) even noted that the biggest challenge of the educators is how to utilize the affordances of the model for efficient delivery of instruction.

Status of Flipped Classroom in the World: The educational landscape today undergoes massive transformation in terms of content, methods, and spaces of learning (UNESCO, 2015). From teacher-centered to a more learner-centered approach, this paradigm shift has caused changes in structuring classroom activities. The flipped classroom, also known as

reverse instruction, is one of the new learner-centered approaches that intend to prepare students for the 21st century (Lane-Kelso, 2015).

One of the many pressing issues confronting educators nowadays is the manner of structuring a 21st-century classroom. Scott (2015) posits that new technologies, international competition, globalization, and others require students to succeed in the present era. Information, media, and technology are considered necessary components of the framework for 21st-century learning (King, Williams, & Warren, 2011). Consequently, educators need to reinvent their classrooms if they want to produce learners who are ready for the present era. The use of a learner-centered approach, like flipping, coupled with Technological platform could be an effective way of molding these learners.

Status of Flipped Classroom in India: Sharanya Menon in her article dated 18th Nov 2020 entitled “Education in India needs an overhaul” wrote that the ASER 2020 report reveals that Indian schools saw high dropout rates and declining enrolment rates even before the COVID-19 pandemic. The Annual Status of Education Report (ASER), conducted annually by Pratham and the National Achievement Survey (NAS), carried out every three years by the central government, studies the state of the education system and highlights learning levels, enrolment rates, and major gaps in the system, among other things. These reports reveal that while children are graduating to a higher class every year, very few are performing at their expected levels.

Synonyms for Flipped Classroom: Inverted Classroom, Classroom flip, Reverse Instructions, Learning Management System (LMS), YouTube lectures,

Features of Flipped Classroom:

1. It is flexible in terms of environment, goals, learning material, delivery mode, etc.
2. The selection of learning material or content is intentional.
3. The student can learn the material on his/her own pace and duration.
4. The student can learn, relearn as many times as he/she can
5. There is no stress on the learner or his/her peer while learning.
6. The student can learn the learning material outside the class, and master the material in the class by doing activities.

Strategies of Flipped Classroom: These are some strategies to help you spend less class time lecturing and more time doing hands-on activities and skills practice.

1. Assign Readings with Questions to find the answer, the language teachers can use this strategy.
2. Read the passage or text and find out the new words or difficult words.
3. Read the text at home and teacher can ask student's views about the literature or whether he/she has different narratives than author? That should be discussed in the class.
4. Create Lecture videos and assign some questions that what they have to find in that video lecture.
5. Provide Demonstration Videos and ask them to do the experiment in the lab setting.
6. Create an Online Class Discussion Group for any subject.
7. Use Digital Curriculum, e-books, e-materials etc. and do the activities in the classroom by dividing class into small groups, by assigning them some projects, etc. These strategies will definitely work in your set up.

Benefits of Flipped Classroom: There are following benefits of Flipped Classroom.

1. It speaks the language of today's students, helps busy students, working students, students who are missing some classes.
2. It helps the struggling students and allows for real differentiation, also helps students of all abilities to excel, thus it takes care of diversified learners.
3. It encourages students to utilize digital content to explore knowledge beyond textbooks, allows students to pause and rewind their teacher's online tutorials and lectures that supplied basic and essential knowledge, and allow students to review the topics again and again as many times as possible, thus allows all students to learn at their own pace as videos can be watched again.
4. It increases student-teacher interaction and student-student interaction, and allows teachers to know their students better and changes classroom management. Flipping can lead to the flipped mastery program. Gives rise to student-centered teaching. Improves visualization and understanding capacity.
5. It changes the way we talk to parents, educate them, and makes the class transparent. It is a great technique for absent teachers. It improves personalized learning and teaching methods. Smoothens student-teacher and student-student collaboration and interaction.
6. Provides a good platform for students to ask questions or seek extra help, encourages students to think out-of-the-box ideas.

7. It's more efficient, as students enter the classroom prepared to contribute. It enriches the lesson as more time can be spent on group work and projects. Doing homework in class allows students to help each other, which benefits both the advanced and less advanced learners.

Limitations to Flipped Classroom: Although there are many benefits of flipped classroom still some limitations are observed, they are as follows,

1. Many argue that flipped approach divides students digitally.
2. The technology required (computers, smart gadgets, internet, etc.) are not accessible to many individuals.
3. Flipped classrooms that utilize videos to deliver instruction sometimes suffer technical challenges/ difficulties.
4. Increases the time spent by students on computer screens.
5. The additional time spent by students at home preparing for topics is highly debated.
6. Threatens the traditional classroom teaching method.

How to implement a Flipped Classroom? Dunn, J. (2014) suggested 6 easy steps for implementing flipped classroom.

1. Plan: Select the topic or lesson which is to be used for flipped learning. Outline the key learning outcomes and a lesson plan.
2. Record: Besides teaching a lesson in-person, make a video. A screen recording also works. Make sure it contains all the teaching points you'd mention in the classroom. In Bergmann and Sams' book (2012), they also pointed out that do not make a video just for the sake of making a video. Only do so when you feel these are appropriate and necessary. It all depends on the educational goal of your lesson. If making videos find better to facilitate your students, then do it. But rather than making a video in classroom teaching style, if a teacher makes it more informal and communicating with the students like a personal tutor then the things will work amazing.
4. Share: Send the videos or vlogs to your students. Make it engaging and clear. Explain that the video's content will be fully discussed in class. Here if the school is using LMS then that is better, that will track and monitor the student's learning hours and activities.

5. Change: Once students have viewed your lesson, now they are ready to understand the concept more in-depth. Your video will make a change in their behavior, so latter will be deep understanding, and mastering the concept.
6. Group: An effective way to held discuss the topic is to divide a class into groups where students are given a task to perform, e.g. language teachers can assign them write a poem, a play, make a video, etc.
7. Regroup: Get the class back together to share the individual group's work with everyone. Ask questions, dive deeper than ever before. After the six steps, Review, Revise, and Repeat!

Some other strategies that can be used in class include various activities:

1. Active learning: Allow students to apply concepts in class where they can ask peers or instructors for feedback and clarification.
2. Peer instruction: Students can teach each other by explaining concepts or working on small problems.
3. Collaborative learning: Collaborative learning activities could increase student engagement, enhance student understanding, and promote collective intelligence.
4. Problem-based learning: Class time can be spent working on problems that can last for the duration of a semester.
5. Discussions or debate: Give students the opportunity to articulate their thoughts on the spot and to develop their arguments in support of their opinions or claims.

One can use the following steps:

1. Induction: - It begins with the buy in get your students, parents and administrators on board with the flip model. Teacher should tell his/her idea about the flipped classroom to all the concerned members, if they are convinced by the idea, then flipped classroom will be successful in that setting.
2. Collection of resources: - Curate the resources you need to flip a classroom; these are resources for instruction such as YouTube videos, online worksheets, quizzes, electronics etc
3. Classroom Management:- On the actual first day of class, classroom management is required for a flip model, just like a traditional model very early on be sure to spend time and incorporate expectations and procedures as this learning style may be new.

4. Technology training to the teachers: The teachers need to learn, how to curate videos through YouTube channels and create playlists and students must be able to access and interact with online content, now we are ready to the use actual flipping.
5. Assigning Homework: - The teacher has to assign content to the students for homework, students will access content through videos, HyperDocs, interactive PowerPoint's slides and much more next up
6. Mastering the material: - The students work on problems during class time, students get to work on the application of skills in class, where a teacher walks around the room and facilitates and helps students as needed.
7. Isolated learning: - Independent learning with flipped classroom students become independent learners and develops the ability to move to the curriculum at their own pace and the last star in the sky.
8. Pairing or Group work: - peer tutoring, pair up your advanced students who mastered the content beforehand with students having a hard time completing the problems.

Researches on Flipped Classroom: The flipped classroom approach is a technology-infused learning model that has been gaining popularity among educators recently. Jensen, Kummer, & Godoy, (2015) concluded that the flipped classroom does not result in higher learning gains or better attitudes compared with the non-flipped classroom when both utilize an active-learning, constructivist approach and propose that learning gains in either condition are most likely a result of the active-learning style of instruction rather than the order in which the instructor participated in the learning process. The effectiveness of such an approach is emphasized in some studies, thus promoting the narrative about the prevalent instrumentality leading to success in the academe. In fact Schmidt and Ralph (2016) found out that using a flipped classroom increases student engagement. According to Li, Jiang, Li, & Liu, (2016) students believe that the teaching method can stimulate the memory, deepen understanding, and improve problem-solving ability. Moreover, Lo, Hew, and Chen (2017) claimed that students found the approach more engaging than the traditional one. They liked watching instructional videos, as these improve their communication with peers. This implies that teachers play a significant role in identifying videos for the learners. Mortensen and Nicholson (2015) found that students participated in flipped classroom developed more critical thinking skills due to the challenges brought about by the various exercises provided

by the teachers. The cognitive and non-cognitive gains observed among first-year students, in the study of Acelajado (2017) affirmed such findings. Cognitive benefits include improved achievement, better critical thinking, and significant learning gains. Non-cognitive benefits include higher cooperation skills and improvement of attitude toward mathematics. Calamlam (2016), which revealed a significant impact of flipped method on the performance of students in a trigonometry class. The study revealed that such effectiveness is significantly larger to high performing students than to moderately performing ones. This finding may imply that in some aspects, the use of the approach may only be more useful for fast learners. Malto, Dalida, and Lagunzad (2018) observed that the exposure to a flipped classroom resulted in a more significant improvement in understanding of concepts in a Biology class. The same study claimed that the students developed positive attitude and improved their performance in the subject. Their finding even indicates that the approach is not just applicable for English and Math, but also for Science and Biology subjects. If the 21st century demands for modernization of systems and practices of learning, according to Eye, Gilb, & Hicks, (2014) flipped approach presents itself as a viable tool toward the attainment of such systems and practices. The method lends well to the development of collaboration one of the pedagogies that support deeper learning stated by Scott, (2015). Ragg, M; Piers, J. (2017) concluded that using flipped-classroom methods enhanced the students' capacity to apply concepts and develop skills. In particular, the ability to receive and process feedback on applied skills was improved.

The flipped approach appears to have positive effects when used in subjects like Science, Mathematics, and English, according to reviewed literature; however, there is no evidence of this in professional education topics like Child and Adolescent Development or research topics like Action Research in Mathematics. In addition to the aforementioned gap, the current study takes into account the typical situation in which students must rely heavily on their teachers or whoever is assigned to cover particular topics in class. The flipped method is a new teaching strategy that has received little attention in the literature, despite learners' rising feeling of procrastination in this area.

Summary: The flipped classroom is a new approach to the pedagogy, but that should be smartly adopted by the teachers, it's judicious use is important, the students, parents and administration should be convinced first, teacher has to help the students at certain level to

boost his/her confidence and must notice his/her progress time to time, after all, major part is of self learning and students must be motivated all the time, as far as technology is concerned, everyone is not having that facility, e.g. if a student is inspired and fond of running, then the lack of shoes will not stop him or should not stop him for doing that activity.

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