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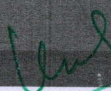
PERSPECTIVES

AND


PREVIEWS

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22.	Privatization of Education In India	<i>Fr. Martin George S.J.</i>	81
CLASSROOM ECOLOGY			
23.	Essentials of Classroom Ecology In Making A Personality	<i>Dr. D. Thomas Alexander</i>	85
24.	Flipped Classroom - Teacher's Role From Sage On The Stage To Guide On The Side	<i>Dr. A. Punitha Mary</i>	90
25.	Importance of Flipped Learning Mathematics Classroom In The Present Scenario of Students And Teachers	<i>N. Rajkumar</i>	95
26.	Successful Technology Integration Inside The Classroom	<i>A. Nicholas Jegan</i>	98
ASSESSMENT IN EDUCATION			
27.	Assessment of Learning: Test Construction Principles	<i>Dr. A. Michael J Leo</i>	101
28.	Assessment And Best Practices In Teaching And Learning	<i>Dr. R. Sasi Priya</i>	107
29.	Assessment And Development of Soft Skills: Scope And Feasibility In School Education	<i>V. Eugin Dellas Leen</i>	110
RESEARCH IN EDUCATION			
30.	Methods of Qualitative Research	<i>Dr. M. Antony Raj</i>	113
31.	Self Regulated Learning in Rural Schools	<i>Dr. Praveen Dhar T.</i>	118
32.	A Study On Social Maturity And Role Confusion Among Higher Secondary School Students of Kottayam District	<i>Dr. Shaiju Francis</i>	121
33.	Brain Dominance And Emotional Intelligence of College Students in Tirunelveli, Madurai and Virudhunagar Districts.	<i>*M. Avoodaiammal @Abirami,</i>	125
34.	Online Tools For Data Collection - A Study	<i>Dr. T. Raja, Librarian</i>	129
TEACHER EDUCATION			
35.	Competency Based Teacher Education	<i>Dr. Sajith Lal Raj S.T.</i>	133
36.	The Current Challenges of Teacher Education and Possible Solutions	<i>Dr. Praveen.O.K,</i>	137
GOVERNANCE IN EDUCATION			
37.	E-Governance: The Need of Era	<i>Dr. R.J.Beena Florence Donark</i>	139
38.	Sports Governance In India: A Perspective	<i>Dr. R. Sathesh Franklin</i>	143


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FLIPPED CLASSROOM - TEACHER'S ROLE FROM SAGE ON THE STAGE TO GUIDE ON THE SIDE

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ABSTRACT

Flipped classroom turns the traditional classroom on its head. In the flipped classrooms, the students watch videos and multimedia materials which explains the concept to be learned. In the class the students will do some activities based on the learned concept and they could clarify their doubts. Hence the role of teachers in the flipped classroom is to guide the students only. In this paper the tools of flipped learning and in-class activities are discussed in detail.

Introduction:

The concept of the flipped classroom has its origins in the 1990's when it was proposed in an article by Alison King that the classroom should be a place for knowledge assimilation rather than for information transfer. However, it was in 2007 that two chemistry teachers at Woodland Park High School in Colorado - Jonathan Bergman and Aaron Sams - first put the flipped class model into practice. Since then, educators globally have worked toward including this learning model into their curricula.

The concept of the flipped classroom turns the conventional classroom on its head. The work meant to be done in class - the lesson plans - are given as visual study material to be perused at home. And the 'homework' - the problem-solving part - is tackled in class through group activity or discussion. The teacher is there as a guide - to help them when they get stuck and to help carry the discussion so that the focus stays on the learning objectives. (Ritinder Kaur, 2016).

Traditional Vs Flipped Classroom:

Jennifer Roland (2015) says that the traditional classroom is the one we're all most familiar with. During class, teachers lecture and lead activities, then at home students do further enrichment and reinforcement activities. A flipped classroom turns that model on its head. Outside of class, students watch videos and other multimedia materials that explain concepts much as a teacher does during a lecture. Then, in class, students work through what they watched, doing activities, participating in discussions, and asking the teacher questions to help them understand the concepts taught. One of the key elements is the teacher's ability to provide just-in-time advice and correct logical fallacies before they take hold. Michalle Pacansky-Brock (2014) says that the class room time in flipped classroom is transformed from a passive to an active experience and the role of the instructor shifts from "sage on the stage" to "guide on the side".

Key Elements of the Flipped Classroom:

According to Brame C., (2013) the following are the elements of the flipped classroom:

1. Provide an opportunity for students to gain first exposure prior to class:

The mechanism used for first exposure can vary, from simple textbook readings to lecture videos to podcasts or screen casts.

2. Provide an incentive for students to prepare for class:

Students should complete a task associated with their preparation and that task was associated with points. The task can vary; that ranged from online quizzes to worksheets to

short writing assignments, but in each case the task provided an incentive for students to come to class prepared by speaking the common language of undergraduate's points. In many cases, grading for completion rather than effort can be sufficient, particularly if class activities will provide students with the kind of feedback that grading for accuracy usually provides.

3. Provide a mechanism to assess student understanding:

The pre-class assignments that students complete as evidence of their preparation can also help both the instructor and the student assess understanding. Pre-class online quizzes can allow the instructor to practice Just-in-Time teaching which basically means that the instructor tailors class activities to focus on the elements with which students are struggling. If automatically graded, the quizzes can also help students pinpoint areas where they need help. Pre-class worksheets can also help focus student attention on areas with which they're struggling, and can be a departure point for class activities, while pre-class writing assignments help students clarify their thinking about a subject, thereby producing richer in-class discussions. Importantly, much of the feedback students need is provided in class, reducing the need for instructors to provide extensive commentary outside of class. In addition, many of the activities used during class time (e.g., clicker questions or debates) can serve as informal checks of student understanding.

4. Provide in-class activities that focus on higher level cognitive activities:

If the students gained basic knowledge outside of class, then they need to spend class time to promote deeper learning. Again, the activity will depend on the learning goals of the class and the culture of the discipline. In other contexts, students may spend time in class engaged in debates, data analysis, or synthesis activities. The key is that students are using class time to deepen their understanding and increase their skills at using their new knowledge.

The Tools of Flipped Learning:

Of course, familiar tools like YouTube, Ever note, Google Drive, and blogging platforms can play a role as well, but here are a few more specifically suited to flipped a comprehensive list of every possible tool educators could use to flip a classroom would require a book (and probably still miss some), but we wanted to address a few resources that are common in flipped classrooms.

1. Camtasia:

To create videos for students to watch at home, it is easy-to-use screen casting software. Camtasia isn't the only one on the market; one can find a list of some of the other screen casting tools. But Camtasia, company has optimized the tool for flipped classrooms. Using Camtasia is fairly intuitive for new users. It allows to record either the screen, or oneself.

2. Wiki spaces:

Part of the appeal of flipped classrooms is that all that extra class time provides more opportunities for collaboration amongst students. Wiki spaces is a great tool for encouraging and enabling that collaboration.

3. EdModo:

EdModo is one of the most commonly used education tools in the world and can even claim the title of largest K-12 social network. It enables a lot of the same kind of tasks that Wiki spaces does: loading content and assignments for the students to access, and allowing students to share discussions and comments, for instance. But it adds a much larger social element since one can interact with other students and educators beyond the classroom.

4. Moodle:

Like Wiki Spaces and Edmodo, Moodle has the functionality to serve as the platform for a flipped classroom. Teachers can load resources, including any relevant ones they find shared by other teachers in Moodle, to create the assignments and curriculum for each class.

5. Poll Everywhere:

The last resource on the list is less about providing or organizing content and assignments for the students, and more about actively soliciting their feedback. If the goal of a flipped classroom is to make the learning experience more student-centered, then it makes sense to regularly check in with them.

In-Class Activities in the Flipped Classroom:

After assessing the understanding of the students in the online environment, the teacher may approach the in-class activities in one of two ways: individual or group-based activities. According to University of Waterloo, the following activities can be given in the classroom.

Individual Activities:

Individual activities can be most beneficial and relevant if the students have demonstrated difficulty with understanding the content or material introduced to them out of class. Individual exercises can be used in advance of group ones to help students navigate a “higher-risk” group activity and can be helpful for students who need more individual reflective time to learn.

iClickers / polling:

Time on task: 5 to 10 minutes; *Group size:* 1 to 2

- Ideally used to provide immediate feedback to students about concepts learned outside of class.
- iClickers are one method of polling a class, others include asking students to hold up a piece of paper with a letter on it to indicate their answer, or a different coloured piece of paper.
- In order to determine whether or not students have read and fully understood the out-of-class material, pose multiple-choice questions and poll students to gauge the variance in answers.

Word webs/concept maps:

Time on task: 30 to 45 minutes; *Group size:* 1 to 4

- Done either individually or collaboratively, concept maps can reinforce concepts learned out of class and build connections between various topics.
- Students map out how concepts, ideas, or theories are thematically related in a visual manner.
- Any gaps can be useful inspiration for discussions either at a group or class level.

Individual problem solving:

Time on task: 5 to 10 minutes; *Group size:* 1 to 4

- In-class problem solving activities allow students to tackle problems during class with their peers and the instructor on hand to discuss challenges.
- Ideally used to increase practice time on problem solving and provide immediate feedback to students about misconceptions.

Group Activities:

Group activities are often the goal of the in-class portion of the flipped classroom. Each student will bring their own individual understanding of the content to the lesson, and together, in small groups, they will be able to draw on each other's knowledge and understanding of the material to forge new understandings and better recall the content.

Think-Pair-Share:

Time on task: 5 to 15 minutes; *Group size:* 2

- Take a central concept presented in the out-of-class material, or a particularly controversial quiz question from a prior assessment, and have students reflect on it individually and then discuss it further.
- Think phase: students work independently and flesh out their thoughts/arguments and may write their thoughts down.
- Pair phase: students discuss their response with a partner.
- Share phase: the instructor elicits responses from all members of the class and begins to engage students in a wider discussion demonstrating the many different perspectives.
- iClickers may be useful in the share phase; instructors may wish to incorporate a peer instruction model.

Affinity Grouping:

Time on task: 30 to 45 minutes; *Group size:* 3 to 5

- Students individually write down ideas on a piece of paper and then in a group attempt to classify them while discussing why certain items deserve to be categorized together.
- This activity helps ensure students are on the same page before embarking on a more complicated in-class activity.

Team Matrix:

Time on task: 10 to 20 minutes; *Group size:* 2

- When new concepts have been introduced that are quite similar to one another, a team matrix can help parse the most salient features of each concept while differentiating between each.
- Present pairs of students with a list of characteristics that may or may not be shared between concepts and have the students determine which characteristics belong to each (or both) concept(s).
- Discuss answers with the entire class afterwards to check comprehension.

Think-Aloud Pair Problem Solving:

Time on task: 30 to 45 minutes; *Group size:* 2

- Present students with a set of complex problems that require multiple steps to solve.
- Pair up students and ask one student to be the problem solver, who explains their thought process in developing a solution based on what was learned out of class.
- The partner listens to this process and offers suggestions if there are difficulties, or expresses confusion should there be parts that are difficult to understand.
- After the first problem has been solved, ask the students to switch roles and begin again.

IF-AT cards:

Time on task: 5 to 15 minutes; *Group size:* 3 to 5

- IF-AT (Immediate Feedback Assessment Technique) cards function like multiple-choice questions; however, rather than circling a letter or filling in a scant on bubble, a learner scratches the card to reveal the correct answer.
- This assessment or group work method has two major benefits: it provides immediate feedback to students (so they do not falsely recall an incorrect answer as correct) and can provide opportunities for students to work collaboratively.

- Students begin by answering the list of questions on their own without the use of IF-AT cards.
- Afterwards, students work with a group to answer the same questions, come to a consensus on what they think is the correct answer, and then scratch the card to discover if they are correct.
- If the students are incorrect, they can discuss the question again and make another attempt.

Case Studies:

Time on task: 1 to 2 hours; *Group size:* 3 to 6.

- Students review a case study concerning a specific, real-life problem or scenario.
- Applying what they learned in the out-of-class portion of the flipped classroom, the group will discuss how they would tackle the problem and what solution they would prepare.
- Each group can then debrief with the rest of the class and present their solution.

Flipped Classroom Advantages:

1. Self-Paced Learning:

When students prepare their class, they can work whenever they want and take whatever time it takes to finish (as long as it's before the deadline).

2. Dive Deeper into Subject:

When students have a basic knowledge about a certain subject, the teacher can dive deeper into the learning material. The teacher can offer more learning material to students who are looking for a challenge.

3. Better Prepared:

Students can follow courses where teachers put on homework students have to prepare. Teachers are able to track the progress of students and view their results. This makes it possible to have a clear idea of what the struggles students face and see what students struggle the most. Furthermore, it allows teacher to identify errors in thinking or concept application.

4. Lectures can be Reused:

It can take a lot of time to prepare homework for students. But once students got it all, it's easy to re-use your lectures for next year.

5. Transparency for Parents:

It gives parents the chance to take a look into their children's video lectures. Once children don't understand a certain concept, parents are able to help them.

Flipped Classroom Disadvantages:

1. Technology Issues:

No access to internet means no homework. Once students don't make their homework, they get easily distracted by other things.

2. Organization:

The first time implementation of the flipped classroom will need a lot of organization. Teachers have to introduce the students to the whole different concept. This can take some time, because they go from a more passive learning style to an active learning style.

3. Lack of Motivation:

Teachers should really motivate students to do their homework, otherwise there's no flipped classroom as some of the students are not motivated.

4. Not for Every Student:

“Meta cognitive skills” seems like a difficult word, but is easy to explain. It’s about knowing how to learn and on what learning style suits best. The flipped classroom requires a lot of self-discipline. Students have to know how to learn, this will come with time.

Conclusion:

Students have to be capable of being motivated to do a lot of work at home. This method won’t work at elementary school. It’s a good method to use for higher education. The flipped classroom seems to be a great way to have better understanding of the learning material and help students where needed.

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IMPORTANCE OF FLIPPED LEARNING MATHEMATICS CLASSROOM IN THE PRESENT SCENARIO OF STUDENTS AND TEACHERS

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Introduction:

Flipped learning is an anticipated effective method that can bring more changes in teaching learning process. Flipped learning is new teaching method especially it is useful task based language teaching. Mathematics is a subject that majority of students find difficult to get through and the mathematics teachers are struggling hard to make the subject understanding and interesting. One of the challenges that mathematics teachers face in their classroom teaching is the shortage of classroom time. Flipping mathematics classroom will help the mathematics teachers to overcome this challenge to great extent.

As an instructional strategy and a type of blended learning Flipped classroom facilitates reverse learning experience against traditional educational arrangement by

