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Flipped Classroom Model and Academic Achievement

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ABSTRACT

The term "flip teaching" refers to the practise of providing a lecture as homework before a face-to-face class. During in-class time, this aids participatory kinds of learning. As part of flipped learning, students are frequently assigned lecture videos to watch as homework. Reverse teaching, inverted classroom, or simply flip teaching are all terms used to describe flipped instruction. Flip teaching is a pedagogical approach in which direct instruction is moved from the group learning space to the individual learning space, resulting in a dynamic, interactive learning environment in which the educator guides students as they apply concepts and engage creatively in the subject matter. Flipping is defined as "doing schoolwork at home and schoolwork at home". The flip teaching approach is a reversal of typical teaching in which students are exposed to new content outside of class via lecture videos, and then utilise class time to complete the more difficult task of integrating the knowledge through problem-solving, discussion, or debates. It's a way that enables teachers to use methodology, or a variety of methods, in their classes. In flip teaching, students study the topic independently first, usually using the teacher's prepared materials. Students use what they've learned in class by solving challenges and completing practical work. Rather than presenting the initial lesson in person, the teacher assists the pupils when they are having difficulty.

Keyword*: Learning Space, Problem-Solving, Challenges, Difficulty, Flip Teaching*

INTRODUCTION

Even though kids gain from the use of digital technology and the adoption of the differentiated instruction model, these benefits also benefit teachers and foster professional growth. Teachers that use computer technology are urged to employ the most up-to-date technology, which should benefit both the teachers and the students. When a teacher uses the differentiated teaching paradigm in the classroom, he or she becomes a reflexive practitioner, which fosters accountability. Above all, the use of digital technology in the classroom, as well as the adoption of the individualised education approach, benefits both students and teachers. These elements help students attain academic success and strengthen their critical thinking skills (Martin, 2000; Anderson, 2007).

Educational technologies, according to Lo and Hew (2017), are important parts of flip teaching since they may be utilised to:

- Capture key content, such as lecture materials, readings, and interactive multimedia, for students to consume at their leisure and at their own pace.
- Provide learning resources in a variety of formats, such as text, videos, audio, and multimedia, to accommodate varied learner types and multimodal learning;
- Use poling toots, discussion tools, and content creation tools to encourage conversation and interaction in and out of class.
- Use microblogging and announcement systems to provide students with timely information, updates, and reminders;
- Use quizzes and polls to provide rapid feedback to teachers and students, indicating revision points; and
- Use analytics to collect data on pupils in order to analyse their progress and identify students who are at danger.

THE EMERGENCE OF FLIPPED CLASSROOM

The face of education is changing as a result of two related trends, namely the technological and ideological changes. The

technology revolution has made it possible to reinforce and replicate information at a very low cost. The printing press, telegraph, wireless radio, television, computers, the internet, and the world wide web were all part of this movement. The dissemination of ideas through these channels has permitted an ideological movement as these technologies have been adopted. The technology revolution aids in the removal of physical barriers to a free and open flow of knowledge. The ideological movement aims to break down artificial barriers erected by humans. With interactive online videos, video lectures have surpassed in-person lectures in the technology revolution. Online education has grown in popularity and is now freely available to students and educators in colleges and schools.

Peer instruction was popularised by Mazur and Crouch (2001). Students were expected to read and answer questions at home before going to class to prepare for the lessons. In class, the lecturer would ask pupils to think about and answer a question on their own. After that, the responses were evaluated, and students were divided into groups to discuss how they arrived at their answers. After the conversation, the students would be given the opportunity to revise their responses. The answers would be reassessed, and the instructor would decide whether the question needed more explanation or if it could move on to the next one.

Peer education is the most common strategy in flipped classes. A study titled 'Inverting the Classroom' was published by (Lage, Platt, & Treglia, 2000). Because the Age of YouTube and video-sharing had not yet arrived, the plan did not succeed. YouTube made it possible for anybody to record and upload videos for others to view in 2005. It was simple and cost-effective to record and generate video presentations of their lectures so that students who missed class could listen to them at home (Bergman & Sams, 2002). They began using this strategy for all of their kids in the year 2000. Students were expected to read their prepared presentations at home and bring construct ideas to class to discuss with other students and apply what they had learned. This empowered students' intangible interpretation and guided each one accordingly, making them active participants in their own learning.

The concepts include the ability to communicate effectively and the ability to identify, formulate, and solve problems in order to achieve greater educational programme outcomes. Many of these ideas are difficult to successfully teach and assess using informative lectures and closed-ended questions. When it comes to transmitting basic knowledge, video lectures are just as efficient as in-person lectures. Video-based learning has become popular because it engages students and helps them retain information. Text, audio, and multimedia are all commonly utilised forms for presenting content, in addition to videos. Instructors organise and record information for pupils to consume at their leisure. Contents can be presented in a variety of forms to support various teaching and learning styles (Ghosh, 2018). Instead, students can be given pre-recorded lectures as homework, freeing up class time for interactive learning activities. The flipped classroom is a term used in educational circles to describe this notion.

RESOURCES USED FOR FLIP TEACHING

Teachers and administrators have a wide range of technology tools available to them, which can be beneficial or detrimental to their use in the flipped classroom. For flipping the classroom, schools have access to a variety of platforms and online resources. YouTube is one of the simplest platforms a teacher may utilise to access videos created by other educators in specific disciplines. A quick internet search revealed a wealth of resources, including the Khan Academy for video presentations. The Khan Academy is a video library developed for instructors that is available online. The rise in educational videos will continue as more teachers gain confidence in using digital technologies. Teachers can also make their own videos in order to give their students a more familiar voice. These options can benefit teachers at various levels of technology. Even if the equipment was of poor quality, the choice of technology assisted good teachers in becoming better. While some aspects of the programme may be intimidating for some teachers, professional development can assist a teacher who is technologically challenged (Tucker, 2012).

REVIEW OF LITERATURE

MJ Geist et al (2015) An investigation of quantitative pre-test-post-test non-equal control amass partly exploratory strategy to see if there is a significant difference in substantive information collecting between traditional and flipped classroom methodologies. The results did not show a significant difference in the methodologies used for the end-of-year test. The use of flipped classroom tactics is bolstered by information gains on examinations and understudies' definite reactions.

N. Sharma et al (2015) An research into the effects of flipping classroom lopes on the delivery of printed, audio, or video-based material prior to a presentation or class session. The three-stage method is based on real-world experience with delivering a flipped classroom at the University of Hong Kong. This activity was evaluated and found to be beneficial.

Hsu SD, et al., (2016) an investigation of the outcomes of PGY understudies' comprehension of and consistent conduct in education over and done with the mediation of Taiwan's thrown teaching environment. The postgraduate year (PGY) curriculum enables future specialists to learn about the diagnosis, treatment, and nursing of a variety of common, general illnesses. The control group contained 43 students from the previous year, i.e. the year before the flipped classroom was implemented. An investigation comparable to this was carried out. The most elevated relationship in the poll's connected networks was between self-viability and social goal (r=0.491, P0.01), followed by demeanour (r=0.365, P0.01) and abstract standards (r=0.360, P0.01). Each of the three showed positive relationships with conduct goal; among state of mind, emotional standards, and self-adequacy, the match astute relationships also achieved essentiality level. The flipped classroom has the potential to transform PGY understudies' learning habits from "inactive" to "dynamic."

Maxwell KL, et al. (2016) conducted a study to assess the efficacy of two teaching techniques in improving nursing students' learning abilities and attitudes toward quality improvement and patient well-being. Two groups (each with 64 students) participate in web-based learning connected to the flipped classroom. It was decided to use a pre-test/post-test control gather arrangement. The use of online modules in conjunction with the flipped classroom had a stronger impact on increasing nursing understudies' learning of value enhancement than the use of online modules alone. There was no factually important difference in wellbeing amongst the meetings.

OBJECTIVES OF THE STUDY

1. To develop flipped classroom material for teaching English to class 9th students.
2. To study the effectiveness at flipped classroom for teaching English to class 9th in terms of
   - Achievement of students.
   - Reaction of students.

RESEARCH METHODOLOGY

The experimental design is a blueprint for the processes that allow a researcher to test hypotheses by drawing vivid conclusions about the relationships between independent and dependent variables. The investigator has chosen the two groups Pre-test, Post-test Control group experimental design for this study. Two groups of subjects were randomly assigned to the Control and Experimental groups in this experiment. Using the statistical approach ANCOVA, these groups were statistically equalised. The analysis of covariance technique is used to control variation among groups and allows the experimenter to utilise statistical methods to minimise the initial variations in numerous variables between the experimental and control groups. This method is preferred to traditional group matching since it uses pre-test mean scores as variables. To guarantee that the technique of treatment is the only condition that differs, the Control group was taught using traditional methods and the Experimental group was taught using Flipped Classroom Strategies. To measure the differences between groups, both groups were given a pre-test and a post-test.

Statistical Techniques Applied In The Study

The statistical techniques used in the study were given below.

1) Descriptive Statistics Analysis: Mean and Standard Deviation
2) Differential analyses: „t‟ - test and ANOVA.
3) Interaction effect and influence analyses: Two way ANOVA and ANCOVA.
4) Relationship analysis: Pearson Product Moment Coefficient Correlation.
5) Predictor Analysis: Simple Linear Regression Analysis.

RESULTS AND DATA INTERPRETATION

Table 1: **Influence of Methods of Teaching, the Selected Demographic Variables and TheirInteraction on the Achievement in English of Experimental Group**

Source	Sum of Squares	df	Mean Square	F	Sig.	PartialEta Square
Corrected Model	4592.329[a]	5	306.090	259.246	0.000	0.999
Intercept	11526.659	1	11526.659	2021.733	0.000	0.950
Gender	2.784	1	2.784	2.358	0.132	0.045
Locale	0.602	1	0.602	0.510	0.480	0.010

Computer Literacy	0.282	1	0.280	0.238	0.629	0.005
Method of Teaching	1056.739	1	1055.240	191.196	0.000	0.947
Error	59.036	62	1.182			
Total	41240.000	72				
Corrected Total	4650.365	65				

The derived „P values for the demographic factors (0.132, 0.480, and 0.629) are larger than 0.01, at 0.01 level, according to table, whereas the „P value for technique of teaching (0.000) is less than 0.01, at 0.01 level. As a result, it can be stated that while teaching methods have a large impact on Experimental group students' English achievement, demographic variables and their interactions do not have a significant impact on Experimental group students' English achievement.

Furthermore, the partial Eta square of 0.947 indicates a substantial link between instructional methods and interaction. There is an unavoidable effect in the Post test scores (F = 2021.733 and P 0.01). Since the partial Eta square is 0.950, the interaction impact of teaching methods on post-test scores is confirmed. Furthermore, it was discovered that the interplay of teaching methods influenced the Post-test Achievement in English among students in standard IX.

Table 2: **Adjusted Mean Scores of Achievement in English of the Control Groupand the Experimental Group by Considering Pre-Test Achievement Scores in English As Covariate**

Source	Sum of Squares	df	Mean Square	F	Sig.	PartialEta Square
Corrected Model	4568.284[a]	2	2285.143	1753.173	0.000	0.982
Intercept	72.323	1	72.322	56.510	0.000	0.468
Pre-test Score	2712.224	1	2713.224	2081.743	0.000	0.971
Group	1641.272	1	1642.272	1259.744	0.000	0.952
Error	82.081	63	1.304			
Total	41240.000	66				
Corrected Total	4650.365	65				

The adjusted F value of Pre-test scores 2081.743 is significant at df equal to 1/65, as shown in table. The derived „P value (0.000) is less than 0.01, at the 0.01 level, according to the ANCOVA results. As a result, the null hypothesis is ruled out. By taking Pre-test Achievement scores in English as Covariate, it can be stated that students in the Control and Experimental groups differ significantly in Adjusted Mean Scores of Achievement in English.

It is demonstrated that after controlling for early variances, the Experimental group's English achievement differs significantly from the Control group's. As a result, it is obvious that Flipped Classroom Strategies are statistically more effective in boosting English achievement than the traditional technique.

The Results of the Regression Analysis are summarized in the table.

Table 3: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error ofthe Estimates
1	0.692[a]	0.478	0.424	10.670

a. Predictor: Gender, Computer Literacy, and Locale (all constant).

The above three demographic variables may predict 42.3 percent (adjusted R2 = 0.477) of variation in Achievement in English at the Post-test among students in standard IX, according to table. Unknown variables or inherent variables can account for the remaining 57.7%.

Table 4: Regression Anova

Model	Sum of Squares		df	Mean Square	F	Sig.
	Regression	3013.076	4	1005.025	8.822	0.000[b]
1	Residual	3300.895	30	114.824		
	Total	6313.970	33			

Critical Variable: Post test Mean Score of Experimental Group.

Predictors: (Constant), Gender, Computer Literacy and Locale
The obtained F (8.822) is significant at the 0. 01 level with df 3/29, as shown in table. The regression model F test has a significance value of less than 0.01, at the 0.01 level, based on ANOVA (0.000). As a result, the null hypothesis was rejected. As a result, it can be inferred that demographic variables play a role in the prediction of English achievement at the post-test among students in standard IX

Table 5: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	60.159	11.887		4.978	0.000
Gender	14.820	4.338	0.460	3.187	0.003
Computer Literacy	13.408	4.489	0.424	2.766	0.010
Locale	2.971	4.174	0.072	0.473	0.640

Dependent: Post test Mean Scores of Experimental Group
The standardized beta in table shows that the relative contribution of the three demographic variables in predicting English Achievement is based on the proportion of prediction of Gender (45.9%), Computer Literacy (42.3%), and Locale (42.3%). (7.1 percent). The results of the study revealed that demographic characteristics play a role in predicting achievement in English at the Post-test among students in standard IX.

The following regression equation is arrived from the above table.
Post Test Scores = Constant + b_1 (Gender) + b_2 (Computer Literacy) + b_3 (Locale)Post Test Scores = 59.159 + 13.820 + 12.408 + 1.971

CONCLUSION

The main goal of this research is to determine the impact of Flipped Classroom Strategies on students' learning performance in English at standard IX, in order to help them gain a better grasp of the topic and attain good exam results. The research findings clearly show a considerable rise in the mean scores reported in the Experimental group's Post-test scores and gain scores. When compared to students in the Control group who were taught using the traditional technique, the Experimental group who were exposed to Flipped Classroom Strategies performed better in terms of learning. After the method, the students' attitudes regarding learning English and using Flipped Classroom Strategies were good. The investigator discovered that flipping could be very beneficial to teachers in teaching English more effectively, and that it is best suited to facilitate interactive whole-class instruction. Flipping also creates a fun learning environment for kids, allowing them to

acquire higher grades, retain more information, and build a passion in learning English, which is the most important aspect of learning any subject. All of the research analysed also found that the flipped classroom approach was a more effective pedagogical model than the traditional teaching style. The researcher believes that if the same educational paradigm is used in the teaching of other fields of science as well as other subjects, positive outcomes can be achieved. To sum up, perhaps teachers and students will eagerly embrace this paradigm shift of Flipping, which will soon hold a dominant position in traditional classrooms of teaching and learning, better preparing students to actively participate in the twenty-first century workplace. The study found that using Flipped Classroom Strategies was more successful and crucial than the current academic practise in today's learning contexts in terms of improving Academic Achievement and establishing a positive attitude.

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