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Effect of Flipped Learning Strategy on Academic Achievement in Geography among Secondary School Students

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Abstract

This study looks into how secondary school geography students' academic performance is affected by the flipped learning approach. Flipped learning, which flips traditional teaching by distributing instructional content outside of the classroom and involving students in active learning during class time, has become a promising technique as student-centered instructional approaches gain more attention. Two groups were included in the pre-post experimental research design: one was taught utilizing the Flipped Learning approach, while the other was taught using traditional techniques. Academic success metrics from both the pre- and post-test were utilized to evaluate the intervention's efficacy. The findings revealed that students exposed to the Flipped Learning strategy demonstrated significantly higher academic achievement in Geography compared to those in the control group. The study concludes that the Flipped Learning approach enhances students' engagement, comprehension, and retention of geographic concepts. It recommends that educators incorporate Flipped Learning into Geography instruction to improve student outcomes and foster deeper understanding.

Keywords: *Flipped Learning, academic achievement, Geography, secondary school students, instructional strategies*

Introduction

The goal of contemporary education is to help students become facilitators, decision-makers, and problem solvers. Even if they don't know the answers to the problems they face, students should graduate from high school equipped with the knowledge and abilities they need to face the difficulties of the real world. Above all else, they must feel at ease collaborating with people from a variety of racial, ethnic, and cultural backgrounds. One-dimensional or individualized pursuits have become more rare. Sportspeople who compete in individual sports like tennis or athletics, no matter how extreme the case, nevertheless need to collaborate with others in their field, including a variety of specialists in the fields of psychology and big data technology to achieve their goals. Adaptability to change, new employment duties and responsibilities, timetables, and the content will be the heart of the modern educational practice, all of this is included in current teaching strategies like the flipped classroom. Programs to educate teachers are required for the future. Modern curricula must also contain the 4C's: Creativity, Critical thinking, Communication, and Collaboration. Making new connections and coming up with original solutions to problems are both components of creative thinking. Critical thinking involves evaluating information and ideas. The capacity to clearly convey information with others is known as communication. Participation and group efforts are key components of collaboration. This will in turn require modern teaching-learning strategies like the flipped classroom approach, in which learning is delivered to the student rather than the other way around, providing a greater return on investment than traditional teaching techniques. Let us examine the flipped classroom concept and see how it meets the demands of millennials.

The Flipped Learning Strategy

In a "flipped classroom," learners learn at home, and teachers help students with their homework in class instead of just lecturing them. Instead of having lectures and homework, the two parts of a class are switched around.

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When using the flipped method, 172 a video lecture is often thought to be the most important part. These lectures are usually made by the instructor and put online, or they are chosen from a library of videos. Videos are shown at home before class so students can watch them at their own convenience. 24X7 access to the videos or study material allows students to be more productive in class. After that, class time is devoted to discussions, projects, and exercises. In class, teachers can use direct instruction time to get students involved in the learning process and give them one-on-one help because it's done outside of the group learning space. Traditionally, students are told to study books and do question exercises at home whereas they listen to lectures and take part in pen-paper tests in class. In flip teaching, the students first learn about the subject on their own, often with help from video lessons made by the teacher. Then, the teacher comes in and helps them with the material. In flipping, teachers become the "guide on the side" rather than being the "sage on the stage", which allows them to work with students one-on-one or in groups during class. The flipped classroom makes sure students understand what they are learning. Prepare for the class: This gives students a chance to do that and also encourages in-class activities that lay emphasis on achieving critical thinking skills. In the flipped class, the learners get instant response from their fellow learners and their teacher. This aids them in organizing their newly acquired knowledge and fixing their errors. Because the flipped classroom gives you immediate feedback, you can see and think about how well you're understanding things.

"When reduced to its most basic description, the flipped classroom approach can be defined as what is done at school is also done at home, and homework performed at home is finished in the classroom, per Sams and Bergmann (2014).

"Learners prepare questions and take notes about what they don't understand about the lesson before the class even starts by going over it in advance utilising a range of technologies, include learning management systems and online presentations and videos" (Kim, Kim, Khera, & Getman, 2014). "When students are in class, they do supportive activities such as working in groups to solve problems, analysing data, and drawing inferences from what they have learned thus far" (Formica & et al., 2010). "In a flipped classroom, students take on more of the responsibility for their own learning rather than having it assigned to them by the teacher." (Overmyer, 2012).

Academic Achievement

Anything that instils a sense of accomplishment in a person for any personal act or learned knowledge is considered an achievement. What one person considers to be a significant accomplishment may be seen to be a little accomplishment by another. It is everything that makes a person feel good about himself or herself and gives him or her confidence in his or her talents. An individual's confidence grows with each new piece of information or piece of knowledge they acquire, and each step forward moves them one step closer to their ultimate goal of total self-development. Even while the precise meaning of academic achievement differs from professional to professional, it is generally accepted as a barometer of academic development. Academic achievement can be characterised as superior performance in all academic fields, both in and out of the classroom, as well as participation in extracurricular activities. Among the many important aspects of school, academic achievement is widely regarded as the most important factor influencing an individual's progress and advancement in life. An important and vital part in the achievement of a child's harmonic growth is played by his or her parents . It can be defined as the knowledge gained and the skills acquired in various areas over a period of time. Academic achievement, according to Kumari (2001), is defined as the sum of information gained after finishing a course in a given grade level that has been assessed through an achievement test. Academic attainment is a multifaceted phenomenon with many facets.

Rationale Of The Study

An increasing number of arguments supporting the superiority of the flipped classroom learning strategy are appearing in the literature as educators start to abandon the traditional teaching approach as the preferred teaching style. These include improving student learning, lowering academic anxiety, and promoting individual responsibility. In recent years, various studies have examined the influence of Flipped Classrooms on student academic attainment, including one by Zengin (2017). The Flipped Classroom Model was used to create the study's learning environment. This teaching method promoted visualisation in mathematical education and helped to long-term learning. To show how the Flipped Classroom Learning Strategy works, Janotha (2016) looked at how Flipped teaching method affected the academic performance of nursing students. A national standardised test was given to students in the class. They were also given tests from the Council on Health Education Systems. The test scores of the treatment group were equated with those of the control group, and it has been found that the participants in the treatment group did better in contrast to individuals in the control group at school. In the right circumstances, the flipped classroom method of learning has the capacity to transform students into self-directed learners. In contrast to their prior passive classroom experiences, students now have the opportunity to develop their capacity for independent thought through active involvement with the material they are studying.

Young (2011) asserts that the flipped experience increases student engagement by having them work together and support one another. Additionally, educators who use the flipped classroom method of instruction can interact with every student in every class every day. Brown (2012) studied undergraduate instructors using the inverted or flipped learning strategy for exploring the experience of instructors who had adopted this model for their classroom based undergraduate courses. The following are among the conclusions for administrators and staff involved in teacher development: Through a process of self-discovery, the participants were gradually relearning how to teach. Their decisions and efforts were guided by their compassion for their pupils' educational experiences. They valued the independence that came with their position since it allowed them to respond to the needs of the students. Overmyer (2014) looked into how student achievement was affected by the flipped learning approach. The impact of flipped classroom methods and the conventional lecture/homework structure on student achievement as determined by standard tests is examined in this quasi-experimental quantitative study. Although there was no statistically significant difference between the two groups' results, the research's findings indicate that students in the flipped parts did perform

marginally better than those in the traditional sections. Martin (2015) examined the effectiveness of flipped instruction on middle school mathematics achievement when compared effectiveness of the flipped learning method in closing the existing achievement gap among this study looked into the teaching of students in pre-AP math classrooms across a range of socioeconomic backgrounds and ethnic subpopulations. The results indicated that no statistically significant differences existed between the State of Texas Assessments of Academic Readiness (STAAR) Mathematics scale scores of students within flipped or traditional classrooms. The researcher did not rule out the null hypotheses, which stated that there would be no appreciable variations in the test scores of African American, Hispanic, White, Other, economically disadvantaged, non-economically disadvantaged, and pre-AP math students flipped or traditional classrooms. A study on students' opinions of the flipped learning approach in a high school math class was carried out by Strohmyer (2016).

This study set out to investigate how flipped learning affected the content and instruction, critical thinking, teamwork, and interactions of high school math students. Using a conceptual framework that combined the theories of cognitive load, sociocultural learning, and schema, a phenomenological design was used. Students' impressions of greater connection and engagement as well as deeper learning in flipped situations were among the main findings. Both the teaching tactics used and the students' capacity to self-regulate their learning were linked to increased critical thinking. As students regarded learning environments and sources of expertise as being more extensive in the flipped context, their conceptions of peer collaboration evolved. Chutinan et. al. (2017) compared dental anatomy module learning in regular lecture and flipped classroom cohorts. A dental anatomy module was taught to two cohorts of predoctoral dental students (N = 70) in an Introduction to the Dental Patient (IDP) course (traditional/lecture cohort: 2012, 2013; flipped classroom cohort: 2014, 2015). Following each of the five dental anatomy classes, both groups were assessed on pre-clinical tooth waxing activities, and after every lecture, they were asked to identify their teeth. Comparing cohorts' IDP course test scores was also done. Compared to students in regular classrooms, pupils in flex classrooms received significantly higher waxing scores (dental anatomy module). Tooth identification scores and the overall IDP course examination were not statistically different between standard and flipped approaches. All students had ample opportunity to review lecture material prior to the evaluation in the two tests that followed the course, and both cohorts received the same scores. The flipped classroom cohort's students learnt independently and performed better on tests that were given right away, but not on tests that were provided over time. Course redesign with a new pedagogical approach should be carefully executed and evaluated for student success. Amanah et. al. (2021) analysed the current state of the Flipped Classroom (FC) studies on physics education by conducting a systematic review. The study demonstrates general trends identified in earlier research, the role of integrated models, tactics, and media in the flipped classroom approach, the advantages of implementing flipped classrooms for physics courses, and the challenges identified in these studies. This methodical investigation of the flipped classroom for physics education looked at the content of 33 scientific articles. The data that were obtained were analysed using a procedure called content analysis. It was discovered that the majority of research in this area was conducted by undergraduate students using a pure flipped paradigm, employing discussion as their primary approach, and using the websites of their institutions as their primary source of online media. When compared to the typical classroom setting, the deployment of the flip classroom technique in a physics course resulted in a beneficial influence on the overall level of student success. On the other side, some obstacles were found, such as difficulties posed by students, difficulties posed by teachers, and technical difficulties. Ariani et. al. (2022) researched to make use of the Android module based on an approach known as "inquiry-based learning" and "flipped classroom" to assist individuals in making use of their cross-disciplinary talents in difficult real-world scenarios. This investigation demonstrated how the Android module-based inquiry flipped classroom learning influences the ability of math pre-service teachers to think creatively in geometry and solve mathematical issues.

In the third term, 123 students had the choice between conventional learning, inquiry-based flipped classroom learning using an Android module, or conventional flipped learning using a PowerPoint module. Because its application successfully prolongs learning time, enables the acquisition of additional knowledge, and fosters a sense of shared accountability for learning in order to participate in the deeper learning process, the Research indicates that the use of Android module-based inquiry flipped classroom learning greatly enhanced the pre-service math instructors' capacity for mathematical problem-solving and creative thought. People who receive this type of education are also more equipped to handle obstacles that they may encounter in the workplace and in real life. Wiginton (2013) examined the effects of the learning environment on students' mathematical achievement, self-efficacy, and learning style in a ninth-grade Algebra I classroom. The lived experiences of the teachers and students in the three distinct learning environments were also examined, as was the impact of the students' learning styles on their choice for a particular learning environment. In terms of mathematics achievement, students in the flipped Mastery and flipped Active learning environments performed noticeably better than those in the traditional learning environment, and in terms of mathematical self-efficacy, students in the flipped Mastery learning environment far outperformed those in the traditional learning environment. These were the primary conclusions of the study.

3) Flipped Active and Flipped Mastery learning environments were rated as satisfactory by students who preferred active, sensing, sequential, and verbal learning experiences; 4) Flipped Mastery learning environment participants liked working at an individualistic pace but found it difficult to keep up; and 5) Flipped Active and Flipped Mastery learning environment participants expressed satisfaction with the level of control over the learning process but dissatisfied with the inability to ask questions in real-time. According to the study's findings, teachers should adopt mastery learning tactics to encourage students' responsibility, self-regulation, and ownership of the learning process, as well as use the Flipped Instructional approach to devote more in-class time to active learning techniques. Sun (2015) investigated the role of self-regulation on students' learning in an undergraduate flipped math class. In the spring of 2015, 151 undergraduate students enrolled in flipped Introductory to Calculus I and II courses at a renowned public university in the Midwest took part in the study by answering two online questionnaires during the semester. This study examined the connections between self-regulatory components and performance in the flipped

math class using Structural Equation Modeling (SEM) as the main methodology. The study discovered that math achievement was positively impacted by all domain-specific self-efficacy, particularly math self-efficacy.

The study also discovered that, via the mediating role of math self-efficacy, prior math knowledge had a favorable indirect impact on math achievement. Additionally, this study discovered a significant correlation between mathematical achievement and asking for help. It was suggested by these findings that pupils who have a high degree of confidence in their ability to learn arithmetic and use the Internet to study arithmetic, who are adept at asking for assistance when they need it, and who are ready for group projects in the classroom. The Flipped Classroom Learning Strategy meets the requirements of the millennials and provides modern answers to present-day educational difficulties, it is critical that more in-depth extensive research be conducted to determine the Flipped Learning Strategy's success. Despite the fact that several studies on Flipped Classroom learning Strategy have been undertaken, there is a lack of research on the influence of this learning Strategy on students' academics, instruction practises, student engagement, and learning procedure. Additionally, little research has been reported at the primary and middle school levels; the majority of effort is concentrated at the higher education level. This study is significant because, according to relevant literature, while there has been an increase in studies connected to the Flipped Classroom learning Strategy around the world, there has been a relatively less number of studies present in India. This study will hopefully lead to a better understanding of the model as well as its implications for educational purposes in the future. Moreover, the findings from this type of research may be utilised to the development of Flipped Classroom Model-based courses in educational settings.

Justification Of The Problem

In the Indian context, traditional teaching methods are gradually giving way to more creative ones. The teacher controls the surroundings in a traditional strategy. Teachers hold the power and responsibility because they believe that students have knowledge gaps that need to be addressed. As a result, teachers force knowledge on students, which makes them passive and disinterested in the teaching and learning process. Because of this, educators and thinkers are very interested in developing new educational practices that can make learning more engaging and enjoyable for students. Since students are actively involved in their own learning process, they require a teaching approach that encourages self-innovative thinking and makes learning more dynamic. Flipped learning is one approach that achieves all of these goals. This approach was promoted by Barbara Walvoord and Virginia Johnson Anderson in their 1998 book Affective Grading. They use a methodology where students learn first-hand material before class and concentrate on the processing portion of learning (problem-solving, synthesis, analysis, etc.).

Based on a survey of related literature, the researcher concludes that while a great deal of work has been done in other countries, not much has been done in the Indian setting. Cooperative learning, active learning, student stress, and other factors have been the subject of numerous studies on the flipped classroom; however, no research has examined the relationship between flipped learning design and these variables. Therefore, the researcher chose to conduct his investigation on "Effect of flipped learning strategy on academic achievement in geography among secondary school students." This is a practical requirement for raising the standard of education because it is a significant concern for academics, educators, and policymakers. The current study is also intended to offer empirical support for the aforementioned assertions made in earlier studies.

Statement of the Problem

Effect of Flipped Learning Strategy on Academic Achievement in Geography Among Secondary School Students

Delimitations of the Study

1. The study was delimited to Pathankot district only.
2. The study was delimited to IX Grade Boys and Girls.
3. The study was delimited to PSEB Schools only.
4. The study was delimited confined to Geography subject only.
5. The present study was confined to 180 Students.

Objectives Of The Study

1. To prepare the Lesson Plan based on Flipped Learning Strategy.
2. To prepare the Achievement test in Geography for IX Grade students.
3. To study the Effect of Flipped Learning Stratrgy on Academic Achievement of IX Grade Boys and Girls in Geography.
4. To compare the Effect of Flipped Learning strategy and conventional Method on academic Achievement of IX Grade students at Different Level of Intelligence. (i.e. high, average and low)

Hypotheses

1. There was no significant difference in the mean gain scores of Academic Achievement among IX Grade students taught through Flipped Learning strategy and Conventional Method of Teaching.
2. There was no significant difference in the mean gain scores of Academic Achievement among IX Grade students with respect to Gender.
3. There was no significant difference in Academic Achievement scores of High Intelligence IX Grade students in Geography taught through Flipped Learning strategy and Conventional Method.
4. There was no significant difference in Academic Achievement Scores of Average Intelligence IX Grade Students in Geography taught through Flipped Learning strategy and conventional Method.
5. There was no significant difference in Academic Achievement Scores of low Intelligence IX Grade students Geography taught through Flipped Learning strategy and Conventional Method.
6. There was Interaction Effect of Flipped Learning Strategy on Achievement at different levels of Intelligence with (high, average & low)

Population

The population is the total group from which the sample is taken. A population is a well define a group individual or observation. All the students of secondary school were taken as population for the study.

Sample

In the beginning, convenient sampling was used to choose schools with internet access on each system. English and Hindi are the languages that are taught. For this investigation 180 students of class 9th were taken from Four schools of Pathankot City.

Research Design Of The Study

This study falls under Pre – Post Experimental Research design.

Tools Used In The Study

The present study conducted with using three tools to collect the data.

1. Intelligence Test by Dr. Atmananda Sharma (2005)
2. Achievement Test (the investigator prepared the achievement test in geography)
3. Lesson plans based on the Flipped Learning Strategy was prepared by the Investigator.

Statistical Techniques

The mean, SD, t-test, and ANOVA were used to examine the data.

Results And Discussion

Table I - Significant Difference In The Mean Gain Scores Of Academic Achievement Among Ix Grade Students Taught Through Flipped Learning Strategy And Conventional Method Of Teaching

	N	Mean Gain Score	SD	df	t-Value	Remarks
Experimental Group	90	8.73	3.656	178	9.188	Significant (0.05)
Control Group	90	4.42	2.539			

It is evident from Table-I Which shows that the main gain scores of Experimental and Control Group was 8.73 and 4.42 and value of SD for the two groups was 3.656 and 2.539 respectively. Furthmore the t- value 9.188 was significantly higher than the table value of 1.97 at the 0.05 level of confidence. So our null hypothesis "There was no significant difference in the mean gain scores of academic achievement among IX grade students taught through flipped learning strategy and conventional method of teaching." was rejected. These findings are in line with previous studies, such as Morteza's 2018 study showed that flipped learning boosts student engagement and academic performance through active, student-centered learning. Therefore, it can be conclude that flipped learning strategy had a singnificant impact on academic achievement of experimental group rather than the control group.

As the mean gain score of experimental group which was taught through flipped learning strategy 8.73 which was higher than the control group taught through the conventional method of teaching. It indicates that the experimental group outperformed the control group.

Table Ii - Significant Difference In The Mean Gain Scores Of Academic Achievement Among Ix Grade Students With Respect To Gender

Variable	Gender	N	Mean Gain Score	SD	t-Value	Remarks
Academic Achievement	BOYS	90	6.99	3.902	1.452	Significant (0.05)
	GIRLS	90	6.17	3.694		

It is evident from Table II, It is found that the mean gain score of Boys was 6.99 and the Girls was 6.17 the value of SD for the two groups was 3.902 and 3.694 respectively. Furthmore the t- value 1.452 was significantly higher than the table value of 1.97 at the 0.05 level of confidence. So our null hypothesis "There was no significant difference in the mean gain scores of academic achievement among IX grade students with respect to gender." was rejected. These findings are in line with previous studies, such as Overmyer (2014) found that while flipped learning did not significantly improve student achievement statistically, students in flipped classrooms scored slightly better than those in traditional settings. Therefore, it can conclude that flipped learning strategy had a significant impact on boys and girls.

Table Iii – Significant Difference In Academic Achievement Scores Of High Intelligence Ix Grade Students In Geography Taught Through Flipped Learning Strategy And Conventional Method

	N	Mean	SD	df	t-Value	Remarks
Experimental Group	24	10.67	4.10	46	5.035	Significant (0.05)
Control Group	24	5.50	2.90			

It is evident from Table III that the mean gain scores for high-level intelligence in the experimental and control groups is 10.67 and 5.50, respectively. Additionally, the SD of the experimental group was 4.10, while control group was 2.90. Furthermore, the t-value 5.035 was significantly higher than the table value of 1.97 at the 0.05 level of confidence, indicating a statistically significant difference between the two groups. So, our null hypothesis "There was no significant difference in Academic Achievement scores of High Intelligence IX grade students in geography taught through Flipped Learning Strategy "was rejected. These findings are in line with previous studies, such as Talan and Gulsecen (2019) found that flipped and blended learning significantly improved students' achievement, engagement, and satisfaction compared to traditional methods. It conclude that flipped learning strategy have a significant impact on students of higher level of intelligence.

Table Iv – Significant Difference In Academic Achievement Scores Of Average Intelligence Ix Grade Students In Geography Taught Through Flipped Learning Strategy And Conventional Method

	N	Mean	SD	df	t-Value	Remarks
Experimental Group	42	8.98	2.70	82	9.355	Significant (0.05)
Control Group	42	3.79	2.37			

It is evident from Table IV that the mean gain scores for average-level of intelligence in the experimental and control groups is 8.98 and 3.79, respectively. Additionally, the SD of the experimental group was 4.10, while control group was 2.90. Furthermore, the t-value 5.035 was significantly higher than the table value of 1.97 at the 0.05 level of confidence, indicating a statistically significant difference between the two groups. So, our null hypothesis " There was no significant difference in Academic Achievement scores of Average Intelligence IX grade students in geography taught through Flipped Learning Strategy" was rejected. These findings are in line with previous studies, such as Huang et al. (2023) conducted a systematic review highlighting the key technologies, pedagogical practices, and challenges in flipped learning, emphasizing its potential to enhance higher education. It conclude that flipped learning strategy have a significant impact on students of average level of intelligence.

Table V – Significant Difference In Academic Achievement Scores Of Low Intelligence Ix Grade Students In Geography Taught Through Flipped Learning Strategy And Conventional Method

	N	Mean	SD	df	t-Value	Remarks
Experimental Group	24	6.38	3.47	46	2.305	Significant (0.05)
Control Group	24	4.46	2.12			

It is evident from Table V that the mean gain scores for Low-level of intelligence in the experimental and control groups is 6.38 and 4.46, respectively. Additionally, the SD of the experimental group was 3.47, while control group was 2.12. Furthermore, the t-value 2.305 was significantly higher than the table value of 1.97 at the 0.00 level of confidence, indicating a statistically significant difference between the two groups. So, our null hypothesis "There was no significant difference in Academic Achievement scores of Low Intelligence IX grade students in geography taught through Flipped Learning Strategy" was rejected. These findings are in line with previous studies, such as Subramaniam and Muniandy (2019) found that while flipped classroom students showed high engagement across all constructs, the overall difference in engagement compared to traditional classrooms was minimal. It conclude that flipped learning strategy have a significant impact on students of low level of intelligence.

Table Vi – Interaction Effect Of Flipped Learning Strategy On Achievement At Different Levels Of Intelligence With (High, Average, & Low)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Intercept	7378.042	1	7378.042	859.886	.000
GROUP	703.017	1	703.017	81.934	.000
Level of Intelligence	176.768	2	88.384	10.301	.000
GROUP* Level of Intelligence (A x B)	93.823	2	46.912	5.467	.005
Error	1492.964	174	8.580		
Total	10388.000	180			
Corrected Total	2599.911	179			

From table VI it can be seen that F value for the interaction effect of levels of intelligence and method of teaching of geography students came out to be 5.467 which is significant at 0.05 level. It indicates that those geography students taught with flipped learning strategy have high achievement test score in comparison to those taught with traditional method across different levels of intelligence and students. Thus our Null hypothesis, "There is no interaction effect of Flipped Learning Strategy and conventional method on achievement at different level of intelligence (High, Average, Low)" was rejected. It reveals that flipped learning strategy method have a significant effect on different levels of Intelligence (High, Average & Low).

Conclusion

It is concluded that the flipped learning stratgy can increase student engagement, particularly behavioural engagement, in the classroom environment. Based on the findings, it is concluded that the flipped classroom not only encourages students to gain knowledge and change their learning behaviour, but it also has a positive impact on the students' learning emotional experience and their cognitive style. The experimental group that was taught using the Flipped Learning Strategy and the control

group that was taught using conventional techniques showed significantly different achievement gains. It is clear that the experimental group performed better with the use of the flip teaching method. According to the research, flipping the classroom encourages students to take an active role in their education and learning. The results of the study are supported by many reviewed studies which advocate positive effects of Flipped Learning Strategy on academic front. (Lage et al.., 2010; Utheim, & Foldnes, 2017). Flipped learning has shown a positive influence on students' academic achievement in Geography. It allows students to study content at their own pace before class, leading to better understanding of key geographical concepts. Classroom time is used for active learning, promoting critical thinking and problem-solving. In geography classes, the method boosts student interest, engagement, and participation. It supports differentiated instruction, helping students of varying abilities succeed. Deeper learning and long-term material retention are promoted via flipped learning.

Overall, it enhances performance and prepares students for real-world application of geographical knowledge.

Educational Implication of the Study

The following are some of the many educational implications of this research:

1. Flipped learning changes the traditional classroom by moving direct instruction outside of class and using classroom time for active, student-centered learning.
2. By interacting with the material at their own pace prior to class, it empowers students to take charge of their education.
3. During class, students participate in collaborative activities that promote critical thinking, problem-solving, and communication skills.
4. Teachers have more chances to meet the requirements of each individual student and provide individualized help.
5. It supports differentiated instruction and helps bridge learning gaps.
6. Flipped learning enhances student engagement and motivation, leading to improved academic outcomes.
7. However, it also requires reliable access to technology and digital materials, which may not be equally available to all students.

   Overall, the strategy has the potential to make learning more meaningful and effective when implemented with proper planning and support.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper

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