

# Effects of the Flipped Classroom Model on Self-Efficacy, Student Engagement, and Learning Approaches among High School Students

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**Abstract:** In recent years, the flipped classroom model has emerged as an innovative teaching strategy that inverts conventional instructional methods, drawing considerable interest. This research explores the impact of the flipped classroom model on high school students' self-efficacy, engagement, and learning approaches. Utilizing a mixed-methods design, the study combined quantitative and qualitative data collection techniques. The participant pool included 200 high school students from diverse backgrounds. Findings demonstrate that the flipped classroom model significantly boosts students' self-efficacy and engagement. Moreover, students were more inclined to adopt deep learning strategies over surface-level approaches. Qualitative insights highlighted students' appreciation for enhanced interactions with teachers and peers, as well as the flexibility to learn at their own pace. These outcomes suggest that the flipped classroom model can effectively promote a more engaging and self-directed learning experience.

## INTRODUCTION

For decades, the traditional classroom model has been the predominant teaching method, characterized by teacher-centered lectures during class and assigned tasks for students to complete at home. This approach, often criticized for fostering passive student participation and failing to address diverse learning needs, has prompted the emergence of the flipped classroom model as a viable alternative. The flipped classroom reverses the conventional structure by providing instructional content online for students to engage with before class, while in-class time is dedicated to interactive, hands-on activities such as discussions, problem-solving, and collaborative work. This study aims to investigate the effects of the flipped classroom model on students' self-efficacy, engagement, and learning approaches.

## LITERATURE REVIEW

### Flipped Classroom Model:

The flipped classroom approach is deeply rooted in constructivist learning principles, which emphasize the importance of active, student-centered education. Constructivism posits that learners construct knowledge through experiences and interactions, rather than passively receiving information. In the flipped classroom model, traditional teaching methods are inverted: content delivery, such as lectures and instructional videos, is shifted to online platforms, allowing students to engage with the material at their own pace and on their own schedule. This asynchronous learning phase empowers students to take control of their learning process, revisit challenging concepts, and build foundational knowledge before attending class.

Consequently, in-class time is repurposed for more dynamic, interactive activities, such as collaborative group work, problem-solving exercises, and hands-on projects. This shift not only fosters deeper understanding and critical thinking but also provides opportunities for teachers to offer personalized guidance and support, addressing individual student needs more effectively. By blending online and in-person learning, the flipped classroom model creates a more engaging, flexible, and student-centered educational experience.

### Self-Efficacy:

Self-efficacy refers to an individual's belief in their ability to succeed in specific situations or accomplish particular tasks. It is not just about having skills or knowledge but about the confidence in one's capacity to use those skills effectively to achieve desired outcomes. This concept was introduced by

psychologist Albert Bandura as part of his social cognitive theory. It emphasizes the role of self-belief in shaping behavior, motivation, and perseverance. Research has shown that students with higher self-efficacy are more likely to set challenging goals, persist in the face of difficulties, and achieve better academic outcomes.

#### Role in Academic Success:

self-efficacy is a critical factor in academic achievement. Students who believe in their ability to succeed are more likely to engage in behaviors that lead to success. For example, a student with high self-efficacy in mathematics will approach math problems with confidence, persist through difficulties, and ultimately perform better compared to a student who doubts their abilities.

#### Key behaviour linked to Self-Efficacy:

- **Setting Ambitious Goals:** Students with high self-efficacy are more likely to set challenging goals for themselves. They believe they can achieve these goals, which motivates them to work harder and aim higher.
- **Resilience in the Face of Challenges:** Self-efficacy fosters resilience. When students encounter obstacles or failures, those with strong self-efficacy are more likely to view these setbacks as temporary and surmountable. They are less likely to give up and more likely to try alternative strategies to overcome difficulties.
- **Higher Academic Performance:** Ultimately, these behaviors—setting high goals and persisting through challenges—lead to better academic outcomes. Students with high self-efficacy tend to achieve higher grades, perform well on tests, and excel in their studies.

#### Student Engagement:

Student engagement is a multifaceted concept that encompasses the level of attention, curiosity, interest, optimism, and passion that students exhibit during the learning process. When students are engaged, they are not merely passive recipients of information but active participants in their educational journey. This active involvement manifests in various ways, such as asking questions, contributing to discussions, and demonstrating a genuine enthusiasm for the subject matter. Engaged students are more likely to attend

classes regularly, participate actively in classroom activities, and complete their assignments punctually.

Their heightened interest and commitment often translate into better academic performance, as they are more motivated to understand and master the material. Furthermore, engagement fosters a positive learning environment, benefiting not only the individual student but also their peers and instructors. Ultimately, student engagement is a critical factor in promoting academic success and fostering a lifelong love of learning.

#### Learning Approaches:

Learning approaches can be broadly categorized into deep and surface learning, each representing distinct ways in which individuals engage with and process information. Deep learning is an approach that emphasizes a genuine and thorough understanding of the material. It involves critical thinking, where learners actively analyze, question, and synthesize information to build meaningful connections. This method encourages the application of knowledge to new and unfamiliar situations, fostering problem-solving skills and long-term retention. Learners who adopt a deep learning approach often seek to grasp underlying principles and concepts, enabling them to think creatively and adapt their knowledge to various contexts.

In contrast, surface learning is characterized by a more superficial engagement with the material. This approach typically relies on rote memorization, where learners focus on retaining information just long enough to reproduce it in exams or assessments, often without fully comprehending the content. The primary goal of surface learning is often to meet immediate academic requirements, such as passing tests, rather than developing a deeper understanding or mastery of the subject. As a result, knowledge gained through surface learning tends to be less durable and less transferable to real-world scenarios. While surface learning may yield short-term success in certain academic settings, it generally lacks the depth and critical engagement that are hallmarks of deep learning, which is more conducive to lifelong learning and intellectual growth.

## METHODOLOGY

### Research Design:

This study utilized a mixed-methods research design, which integrates both quantitative and qualitative approaches to offer a more holistic and nuanced understanding of the research problem. The quantitative component involved the use of structured surveys to collect numerical data from a large sample of participants. This allowed for the measurement of specific variables related to the flipped classroom model, such as student performance, engagement levels, and satisfaction rates. The statistical analysis of this data provided objective insights into the overall trends and patterns associated with the flipped classroom approach.

On the other hand, the qualitative component consisted of in-depth interviews with a smaller, purposefully selected group of participants. These interviews were designed to capture rich, detailed narratives about participants' experiences, perceptions, and challenges with the flipped classroom model. The qualitative data provided context and depth to the quantitative findings, revealing underlying reasons, motivations, and attitudes that numbers alone could not fully explain.

By combining these two methods, the study was able to triangulate the data, enhancing the validity and reliability of the findings. The mixed-methods approach allowed researchers to not only quantify the effects of the flipped classroom model but also to explore the "why" and "how" behind those effects. This comprehensive understanding is crucial for developing more effective educational strategies and for providing actionable recommendations for educators and policymakers. Overall, the integration of quantitative and qualitative data offered a more complete picture of the flipped classroom's impact, addressing both the breadth and depth of the research question.

### Sampling:

The study was designed to investigate the effectiveness of the flipped classroom model compared to the traditional classroom approach, involving a sample of 200 high school students. These students were selected to represent a wide spectrum of socio-economic backgrounds, ensuring that the findings would be applicable to a diverse population and not limited to a specific demographic.

To maintain objectivity and reduce bias, participants were randomly assigned to one of two groups: the flipped classroom group and the traditional classroom group. In the flipped classroom model, students were expected to engage with instructional content, such as video lectures or reading materials, at home before attending class, allowing in-class time to be dedicated to interactive activities, discussions, and problem-solving.

In contrast, the traditional classroom group followed the conventional approach, where teachers delivered lectures during class time, and students completed assignments or studied independently outside of class. This randomized allocation helped ensure that any differences in outcomes between the two groups could be more confidently attributed to the instructional methods rather than other variables. The study aimed to provide insights into which teaching strategy might be more effective in enhancing student engagement, understanding, and academic performance.

### Data Collection:

Quantitative data were collected using validated scales to measure key variables: self-efficacy, student engagement, and learning approaches. These scales were carefully selected to ensure reliability and validity, allowing for robust statistical analysis of the relationships between the flipped classroom model and the targeted outcomes. The quantitative data provided measurable and generalizable insights into how the flipped classroom influenced students' beliefs in their capabilities (self-efficacy), their active participation in learning activities (student engagement), and their preferred methods of acquiring knowledge (learning approaches).

In addition to the quantitative data, qualitative data were gathered through semi-structured interviews with a subset of participants. These interviews were designed to explore students' experiences in greater depth, offering a nuanced understanding of how the flipped classroom model impacted their learning processes, motivation, and overall academic experience. The semi-structured format allowed for flexibility, enabling participants to share their perspectives openly while ensuring that key themes related to self-efficacy, engagement, and learning approaches were consistently addressed. By combining quantitative and qualitative data, the study aimed to provide a comprehensive analysis of the flipped classroom model's effects, balancing

measurable outcomes with rich, contextual insights into students' lived experiences. This dual approach strengthened the research by triangulating findings and offering a more holistic understanding of the flipped classroom's impact on high school students.

## DATA ANALYSIS

Analytical approaches used to evaluate data from a study comparing flipped and traditional classroom settings. For quantitative data, statistical software was employed to conduct comparisons between the two groups. Statistical tests like t-tests, ANOVA, or regression analysis were used to determine if there were significant differences in outcomes, such as test scores, attendance, or other measurable metrics. The use of statistical software SPSS ensured accuracy, efficiency, and the ability to handle large datasets, allowing researchers to draw objective conclusions about the effectiveness of each teaching method.

For qualitative data, a thematic analysis was conducted. This involved examining non-numerical data, such as student feedback, interview transcripts, or open-ended survey responses, to identify recurring patterns, themes, or insights. Thematic analysis is a systematic process of coding and categorizing data to uncover underlying meanings, perspectives, or experiences shared by participants. This approach provided a deeper understanding of the subjective aspects of the learning experience, such as student engagement, satisfaction, or challenges faced in each classroom format. Together, the quantitative and qualitative analyses offered a comprehensive evaluation of the flipped versus traditional classroom models, combining measurable outcomes with rich, contextual insights.

## RESULTS

### Self-Efficacy:

Students in the flipped classroom group reported significantly higher levels of self-efficacy compared to those in the traditional classroom group. This suggests that the flipped classroom model empowers students to take control of their learning and build confidence in their abilities.

### Student Engagement:

The flipped classroom group also demonstrated higher levels of student engagement. Students reported being

more actively involved in class discussions, collaborative activities, and problem-solving tasks.

### Learning Approaches:

Students in the flipped classroom group were more likely to adopt deep learning approaches, characterized by critical thinking and a genuine understanding of the material. In contrast, students in the traditional classroom group tended to rely more on surface learning approaches.

### Qualitative Insights:

Interviews revealed that students appreciated the flexibility of the flipped classroom model, which allowed them to learn at their own pace. They also valued the increased interaction with teachers and peers, which enhanced their understanding of the material and fostered a sense of community.

## DISCUSSION

The findings of this study align with previous research on the benefits of the flipped classroom model. By providing students with greater autonomy and opportunities for active learning, the model appears to enhance self-efficacy, engagement, and deep learning approaches. These outcomes are particularly important in the context of modern education, where the ability to think critically and work collaboratively is increasingly valued.

## CONCLUSION

This study provides compelling evidence that the flipped classroom model can positively impact self-efficacy, student engagement, and learning approaches among school students. Educators and policymakers should consider adopting this model to create more dynamic and effective learning environments. Future research should explore the long-term effects of the flipped classroom model and its applicability across different educational contexts.

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