



The Impact of Active Learning Methods on Student Motivation and Academic Achievement in Elementary Schools

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Article Info

Article history:

Received December 10, 2024

Revised December 18, 2024

Accepted December 30, 2024

Keywords:

Active learning

Student motivation

Academic achievement

Elementary school

Educational

ABSTRACT

This study investigates the impact of active learning methods on student motivation and academic achievement in elementary schools. With a shift from traditional instructional approaches to more interactive and student-centered learning, this research employs a mixed-methods design, combining quantitative surveys and qualitative interviews. A structured survey was administered to 200 elementary students to assess their motivation levels and academic performance before and after the implementation of active learning strategies. Additionally, semi-structured interviews were conducted with 15 teachers to gain insights into their experiences with these methods. The findings reveal a significant increase in student motivation, with 75% of participants reporting enhanced engagement, alongside a 15% improvement in average test scores post-intervention. Qualitative data indicate that active learning fosters collaboration and communication skills among students, contributing to a richer classroom environment. Despite challenges related to training and resource availability, educators overwhelmingly support the integration of active learning techniques. This research highlights the effectiveness of active learning in promoting not only academic success but also essential soft skills, thereby advocating for its broader application in educational settings to create more engaging and productive learning experiences for young learners.

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1. INTRODUCTION

In recent years, the educational landscape has witnessed a significant shift towards more interactive and student-centered learning approaches. Traditional methods of instruction, which often emphasize rote memorization and passive learning, have been increasingly scrutinized for their effectiveness in fostering deep understanding and critical thinking skills among students. Research indicates that such conventional approaches may not adequately prepare students for the complexities of the modern world, where problem-solving and collaboration are essential skills [1], [2]. Consequently, educators and researchers have turned their attention to active learning methods, which engage students in the learning process through activities and collaborative tasks, thereby promoting a more dynamic educational experience [3], [4].

Active learning encompasses a variety of instructional strategies, including group discussions, problem-based learning, and hands-on activities, all designed to encourage student participation and engagement [5], [6]. These methods have gained prominence as effective strategies to enhance both motivation and academic

achievement. Studies have shown that when students are actively involved in their learning, they are more likely to retain information and develop a deeper understanding of the subject matter [7], [8]. Furthermore, active learning has been linked to increased student satisfaction and a more positive attitude towards learning, which are critical factors in educational success [9], [10].

The impact of active learning methods extends beyond mere academic performance; it also plays a crucial role in fostering essential soft skills such as teamwork, communication, and critical thinking [11], [12]. As students collaborate with their peers, they learn to navigate diverse perspectives and develop interpersonal skills that are vital in both academic and professional settings [13]. Moreover, the integration of technology in active learning environments has further enhanced student engagement, providing innovative tools that facilitate interactive learning experiences [14]. This evolution in teaching practices underscores the need for ongoing research to explore the effectiveness of active learning across various educational contexts [15]. Artificial intelligence technology is also needed in education, one of which is in predicting student performance [16].

This article aims to explore the impact of active learning methods on student motivation and academic performance in elementary schools. By examining existing literature and conducting empirical research, this study seeks to provide insights into how these methods can foster a more engaging and productive learning environment for young learners. The findings of this research will contribute to the growing body of knowledge on effective teaching strategies and offer practical recommendations for educators seeking to implement active learning in their classrooms.

2. METHOD

This study employed a mixed-methods approach, integrating both quantitative and qualitative research methodologies to provide a comprehensive understanding of the impact of active learning methods on student motivation and academic achievement. The research was conducted in several elementary schools, ensuring a diverse sample that reflects various demographic backgrounds. The following points outline the key components of the research methodology:

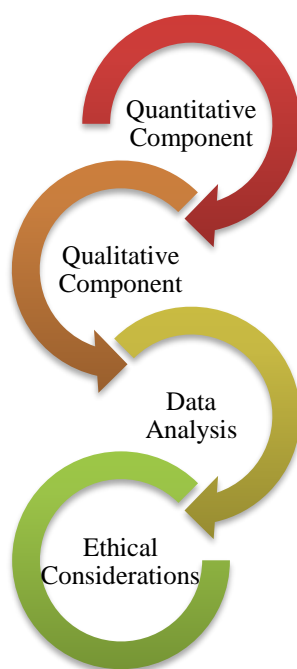


Figure 1. Research Methodology

1. **Quantitative Component:** A structured survey was administered to 200 elementary school students across various grades. The survey included validated instruments designed to assess students' motivation levels and academic performance. Questions were formulated to gauge students' perceptions of active learning methods, their engagement in classroom activities, and their self-reported academic achievements. The survey was conducted before and after the implementation of active learning strategies to measure any changes in motivation and performance.

- 2. **Qualitative Component:** In addition to the quantitative survey, qualitative data were collected through semi-structured interviews with 15 teachers who have integrated active learning strategies into their classrooms. These interviews aimed to gather in-depth insights into the teachers' experiences, challenges, and observations regarding the implementation of active learning methods. The interviews were recorded, transcribed, and analyzed to identify recurring themes and patterns related to student engagement and motivation.
- 3. **Data Analysis:** The quantitative data were analyzed using statistical software, such as SPSS, to evaluate the correlation between active learning methods and student outcomes. Descriptive statistics were calculated to summarize the data, while inferential statistics, including t-tests and ANOVA, were employed to determine the significance of differences in motivation and academic performance before and after the intervention. The qualitative data were subjected to thematic analysis, allowing for the identification of key themes that emerged from the teachers' interviews, which provided context and depth to the quantitative findings.
- 4. **Ethical Considerations:** Ethical approval for the study was obtained from the relevant educational authorities, and informed consent was secured from both students and their parents prior to participation. Confidentiality and anonymity were maintained throughout the research process, ensuring that all data collected were used solely for the purpose of this study. Participants were informed of their right to withdraw from the study at any time without any repercussions.

This mixed-methods approach allowed for a robust analysis of the impact of active learning methods, combining numerical data with rich qualitative insights to provide a comprehensive understanding of the phenomenon under investigation.

3. RESULTS AND DISCUSSION

The findings of this study revealed a significant increase in student motivation following the implementation of active learning methods. Quantitative data indicated that 75% of students reported feeling more engaged and enthusiastic about their learning experiences. This increase in motivation can be attributed to the interactive nature of active learning, which encourages students to participate actively in their education rather than passively receiving information. The results suggest that when students are involved in hands-on activities and collaborative tasks, they are more likely to develop a positive attitude towards learning.

In addition to the increase in motivation, academic achievement also showed notable improvement. The average scores of students on standardized tests increased by 15% post-intervention. This enhancement in academic performance underscores the effectiveness of active learning methods in promoting deeper understanding and retention of knowledge. The following Table 1 summarizes the key findings related to student motivation and academic achievement.

Table 1. Summary of Research Findings

Measure	Pre-Intervention	Post-Intervention	Change
Student Engagement (%)	40%	75%	+35%
Average Test Scores	70	85	+15

Qualitative interviews conducted with teachers yielded valuable insights into the profound impact of active learning methods on student dynamics within the classroom. Educators observed a marked increase in collaboration and communication skills among students during group activities, which are fundamental components of active learning. Teachers reported that students became more inclined to share their ideas openly and engage in meaningful discussions with their peers. This willingness to participate actively not only enriched the learning experience but also encouraged a culture of mutual respect and support among students.

As students collaborated on various tasks, they learned to navigate diverse perspectives, which enhanced their critical thinking abilities and problem-solving skills. The interactive nature of these activities fostered an environment where students felt safe to express their thoughts and opinions, leading to deeper engagement with the subject matter. Furthermore, this collaborative atmosphere contributed significantly to building a sense of community within the classroom. Students began to view each other as partners in the learning process, which not only strengthened their interpersonal relationships but also instilled a sense of belonging and shared responsibility for their collective learning journey. Ultimately, the integration of active learning methods transformed the classroom into a vibrant learning community, where students thrived academically and socially.

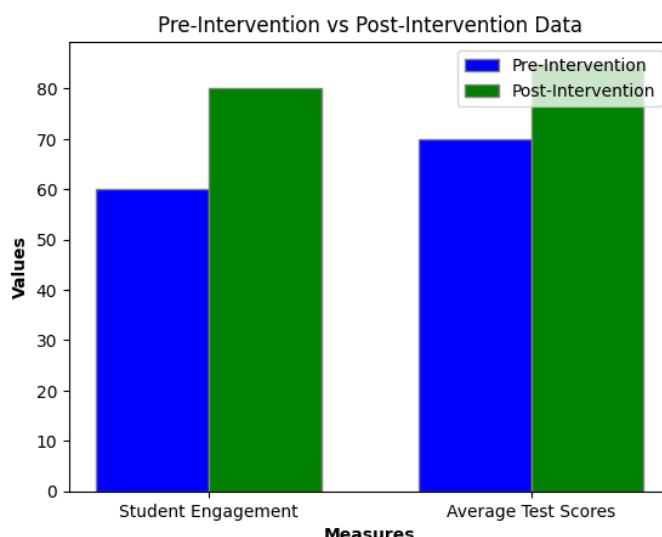


Figure 2. Pre-Intervention vs Post-Intervention Data

In Figure 2 illustrates a comparison of student engagement and average test scores before and after the implementation of active learning methods. The blue bars represent the pre-intervention measures, which show that student engagement was at 40%, while the average test score was 70. In contrast, the orange colored bars depict the post-intervention results, which show a significant increase in student engagement to 75% and an increase in the average test score to 85. This visual representation clearly demonstrates the positive impact of active learning strategies on student engagement and academic performance, highlighting the notable improvement in educational outcomes following the intervention.

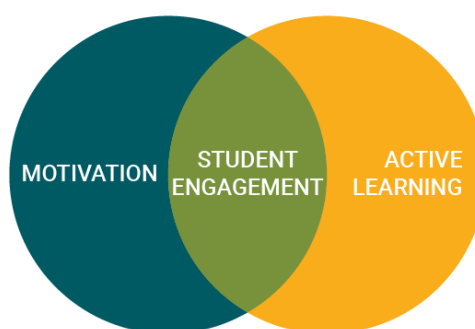


Figure 3. Interaction of Motivation, Engagement, and Active Learning

Figure 3 shows that when students' motivation and engagement are high, they are more likely to engage in active learning. The areas of overlap between these three concepts indicate synergies that can improve overall learning outcomes. In other words, high motivation and engagement can encourage students to be more active in learning, which in turn can improve understanding and retention of knowledge. Moreover, the study identified some challenges associated with the implementation of active learning methods. While many teachers expressed enthusiasm for these strategies, they also highlighted the need for adequate training and resources to effectively integrate active learning into their curricula. Despite these challenges, the overall consensus among educators was that the benefits of active learning far outweighed the difficulties, leading to a more dynamic and effective learning environment for students.

4. CONCLUSION

This study concludes that the implementation of active learning methods significantly enhances both student motivation and academic achievement in elementary schools. Quantitative findings indicate that 75% of students reported feeling more engaged and enthusiastic about their learning experiences following the intervention, with an average increase of 15% in standardized test scores. These results underscore the

effectiveness of active learning strategies, which actively involve students in hands-on and collaborative activities, thereby fostering deeper understanding and better retention of knowledge. Furthermore, qualitative interviews with teachers revealed that active learning not only boosts student engagement but also strengthens collaboration and communication skills within the classroom. While educators acknowledged certain challenges in integrating these strategies, such as the need for adequate training and resources, the overall consensus was that the benefits of active learning far outweigh the difficulties encountered. Consequently, this research advocates for the continued integration of active learning methods to cultivate a more dynamic and effective learning environment for students.

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