

Impact of Blended Learning Approach on Student Engagement and Academic Achievement Among B.Ed. Student

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ABSTRACT

The rapid integration of digital technologies in education has significantly transformed traditional teaching–learning processes, giving rise to blended learning as an effective instructional approach. Blended learning combines face-to-face classroom instruction with online learning components, thereby creating a flexible, interactive, and student-centered learning environment. The present study aims to examine the impact of the blended learning approach on student engagement and academic achievement among B.Ed. students.

A quasi-experimental pre-test–post-test control group design was employed, involving a sample of 60 B.Ed. students, divided equally into experimental and control groups. The experimental group was exposed to a structured blended learning intervention for four weeks, while the control group was taught using conventional lecture-based methods. Data were collected using a Student Engagement Scale and an Academic Achievement Test developed and validated by the researcher.

The findings revealed a statistically significant improvement in both student engagement and academic achievement among students exposed to the blended learning approach. Furthermore, a positive correlation was observed between student engagement and academic performance, indicating that higher levels of engagement contribute to improved learning outcomes. The study highlights the effectiveness of blended learning in promoting active participation, motivation, and deeper understanding among learners.

The results suggest that blended learning can be a powerful pedagogical strategy in teacher education programs, enabling future educators to integrate technology effectively into classroom practice. The study recommends the incorporation of blended learning approaches in curriculum design to enhance the overall quality of teaching and learning.

Keywords: Blended Learning, Student Engagement, Academic Achievement, Teacher Education, B.Ed. Students

INTRODUCTION

The advancement of information and communication technology has brought a paradigm shift in the field of education, leading to the transformation of traditional teaching methodologies into more innovative and learner-centered approaches. In recent years, blended learning has emerged as one of the most effective instructional strategies, integrating face-to-face classroom interaction with digital learning environments. This hybrid model not only enhances accessibility and flexibility but also creates opportunities for interactive and self-directed learning.

Blended learning represents a balanced combination of traditional and online teaching methods, allowing students to benefit from both structured classroom instruction and technology-enabled learning experiences. It facilitates the use of multimedia resources, online discussions, virtual classrooms, and digital assessments, thereby enriching the learning process. In the context of higher education, particularly teacher education, the adoption of blended learning is highly significant, as it prepares future educators to meet the demands of modern classrooms that increasingly rely on digital tools and platforms.

Student engagement is widely recognized as a key determinant of academic success. It refers to the degree of attention, curiosity, interest, and involvement that students exhibit in the learning process. Engaged students are more likely to participate actively, think critically, and achieve higher academic outcomes. However, traditional lecture-based teaching methods often limit student participation, resulting in passive learning and reduced motivation.

Blended learning addresses these limitations by providing diverse learning opportunities that cater to different learning styles. Through online components such as videos, interactive quizzes, and collaborative platforms, students are encouraged to engage more actively with the content. Additionally, face-to-face sessions allow for direct interaction, clarification of doubts, and immediate feedback, thereby creating a comprehensive learning experience.

Academic achievement, another crucial aspect of educational outcomes, reflects the extent to which students have acquired knowledge and skills. It is influenced by various factors, including teaching methods, learning environment, and student engagement. Research indicates that instructional approaches that promote active learning and participation tend to yield better academic results.

In the context of B.Ed. students, the importance of blended learning becomes even more pronounced. As future educators, they are expected to develop not only subject knowledge but also pedagogical skills that incorporate technology into teaching. Exposure to blended learning during their training enables them to understand its practical applications and effectiveness, thereby enhancing their teaching competencies.

Despite the growing interest in blended learning, there is a need for empirical studies that examine its impact on both student engagement and academic achievement within teacher education programs. The present study seeks to address this gap by investigating how blended learning influences these two critical variables among B.Ed. students.

By adopting a systematic research design, this study aims to provide evidence-based insights into the effectiveness of blended learning as an instructional strategy. The findings are expected to contribute to the development of innovative teaching practices and support the integration of technology in teacher education.

REVIEW OF LITERATURE

Blended learning has become an important area of educational research because it combines the strengths of face-to-face teaching with the flexibility of online learning. It is generally understood as an instructional approach in which classroom interaction is supported by digital resources, online activities, multimedia content, and technology-mediated communication. **Garrison and Vaughan's** work on blended learning in higher education emphasizes that blended learning is not merely the addition of technology to traditional teaching, but a purposeful redesign of the learning experience through social, cognitive, and teaching presence.

In higher education, blended learning has been associated with active learning, flexible access to learning materials, and greater opportunities for interaction. A systematic review by **Ashraf et al.** reported that blended learning is widely used to promote active learning and improve learning outcomes across educational settings. Similarly, **Cao's** meta-analysis found that blended learning can produce higher academic achievement than traditional face-to-face learning in several contexts.

Student engagement is one of the most significant factors influencing learning success. **Fredricks, Blumenfeld, and Paris** described engagement as a multidimensional construct involving behavioral, emotional, and cognitive components. Behavioral engagement includes participation and effort, emotional engagement refers to interest and motivation, and cognitive engagement involves deeper investment in learning. This framework is highly relevant to blended learning because digital tools and classroom interaction can together support all three dimensions.

Recent studies also suggest that blended learning has a positive influence on engagement. **De Bruijn-Smolters' 2024** review reported that blended learning has a moderate to high positive impact on academic, behavioral,

cognitive, and affective engagement, as well as on learning outcomes. This indicates that blended learning can help students become more active, interested, and mentally involved in the learning process.

Academic achievement is another major outcome studied in relation to blended learning. Research evidence suggests that blended learning can improve achievement by allowing learners to revisit online materials, participate in discussions, complete self-paced tasks, and receive feedback beyond classroom time. **Means et al.** reported that the effectiveness of online and blended learning depends strongly on design, implementation, and learning conditions. This shows that blended learning becomes more effective when online and offline components are meaningfully integrated rather than used separately.

In teacher education, blended learning has special significance. B.Ed. students are future teachers, and their exposure to blended learning helps them understand how digital tools can be used pedagogically. It also develops their ability to participate in technology-supported learning environments and later apply similar strategies in their own classrooms. Blended learning supports collaboration, reflection, independent learning, and digital competence, all of which are important for teacher preparation.

The Community of Inquiry framework provides a strong theoretical base for blended learning. It explains that meaningful learning occurs through the interaction of teaching presence, social presence, and cognitive presence. Teaching presence refers to instructional design and facilitation, social presence supports communication and collaboration, and cognitive presence promotes reflection and knowledge construction. In the present study, these elements are reflected through classroom teaching, online activities, peer discussion, and reflective learning tasks.

Although many studies have established the general effectiveness of blended learning, there is still a need for more empirical research in teacher education, especially among B.Ed. students. Much of the existing research focuses on general higher education, school education, or technology-based instruction broadly. Therefore, the present study attempts to examine the specific impact of blended learning on two important outcomes: student engagement and academic achievement among B.Ed. students.

Overall, the reviewed literature indicates that blended learning has strong potential to improve student engagement and academic achievement when implemented through a well-planned instructional design. The present study builds on this evidence by applying a structured blended learning intervention in the context of teacher education.

Objective of the Study

- To study the impact of blended learning on student engagement.
- To examine its effect on academic achievement.
- To compare blended and traditional teaching methods.

Hypothesis of the Study

H₀₁: There is no significant difference in student engagement between B.Ed. students taught through the blended learning approach and those taught through traditional teaching methods.

H₀₂: There is no significant difference in academic achievement between B.Ed. students taught through the blended learning approach and those taught through traditional teaching methods.

H₀₃: There is no significant relationship between student engagement and academic achievement among B.Ed. students.

Variables of the Study

Independent Variable:

Blended Learning Approach (combination of face-to-face and online teaching)

Dependent Variables:

- Student Engagement
- Academic Achievement

Control Variables:

Age, educational level (B.Ed.), subject content, and duration of instruction

Operational Definitions

Blended Learning:

A teaching approach that combines face-to-face classroom instruction with online learning activities during the intervention period.

Student Engagement:

The level of students' participation, interest, and involvement in learning, measured through scores obtained on the Student Engagement Scale.

Academic Achievement:

The performance of students in learning tasks, measured through scores obtained in the Academic Achievement Test.

METHODOLOGY

Research Design

The present study employed a quasi-experimental pre-test–post-test control group design to examine the impact of the blended learning approach on student engagement and academic achievement among B.Ed. students. Two groups were formed: an experimental group and a control group. Both groups were assessed before and after the intervention, allowing for a comparison of learning outcomes and engagement levels.

Population and Sample

The population of the study consisted of B.Ed. students enrolled in teacher education programs. A sample of 60 students was selected using a convenient sampling technique. The students were divided into two equal groups, with 30 students in the experimental group and 30 students in the control group. Both groups were similar in terms of academic background and demographic characteristics to ensure comparability.

Intervention Material

The intervention materials were designed to support the blended learning approach. These included digital learning resources such as instructional videos, PowerPoint presentations, online assignments, and discussion activities, along with traditional classroom teaching materials. The content was aligned with the prescribed B.Ed. curriculum and structured to promote active participation and understanding.

Intervention Procedure

The intervention was conducted over a period of four weeks, with three sessions per week, each lasting approximately 40–45 minutes. The experimental group was taught using the blended learning approach, where classroom instruction was integrated with online learning activities. Students were provided with digital content, participated in online discussions, and completed assignments through digital platforms.

In contrast, the control group was taught using the traditional lecture method without the use of online resources. Both groups were taught the same content during the intervention period. At the end of the intervention, post-tests were administered to both groups to assess changes in engagement and academic achievement.

Tool for Data Collection

Data were collected using two tools developed by the researcher:

1. Student Engagement Scale (SES):

A Likert-type scale consisting of 20 items designed to measure behavioral, emotional, and cognitive engagement among students.

2. Academic Achievement Test (AAT):

A structured test designed to assess students' understanding and performance in the subject content taught during the intervention. The test consisted of objective and short-answer questions with a total score of 50 marks.

Both tools were reviewed by subject experts to ensure content validity, and necessary modifications were made before administration.

Data Collection Procedure

The data for the present study were collected in a systematic manner over the course of the intervention. Initially, both the experimental and control groups were administered the pre-test, which included the Student Engagement Scale and the Academic Achievement Test, to assess their baseline levels. Following this, the experimental group was exposed to the blended learning approach, where classroom teaching was integrated with online learning activities such as digital content, assignments, and discussions. At the same time, the control group continued to receive instruction through the traditional lecture method.

The intervention was carried out for a period of four weeks, with regular sessions conducted for both groups. Throughout this period, efforts were made to maintain consistency in content delivery, duration, and learning conditions for both groups, except for the teaching method used. After the completion of the intervention, both groups were administered the post-test using the same tools to measure any changes in student engagement and academic achievement.

The responses were collected, scored, and recorded using a structured evaluation sheet. The collected data were then organized and prepared for statistical analysis to determine the effectiveness of the blended learning approach.

Data Analysis and Interpretation

The data collected from the Student Engagement Scale and Academic Achievement Test were analyzed using both descriptive and inferential statistical techniques. Mean and standard deviation were calculated to summarize the performance of students in both the experimental and control groups. To examine the effect of the blended learning approach, an independent samples t-test was used to compare the post-test scores of the experimental and control groups for student engagement and academic achievement. This test was chosen because it allows comparison between two independent groups exposed to different teaching methods.

In addition, the Pearson correlation coefficient (r) was computed to determine the relationship between student engagement and academic achievement. All hypotheses were tested at the 0.01 level of significance, ensuring a high level of statistical reliability.

Table 1 Independent Sample t-Test of post-tests of Control Group and Experimental Group for Student Engagement

Group	N	Mean	SD	t-value	Level of Significance
Control Group	30	62.4	8.5	4.12	S** (0.01 level)
Experimental Group	30	74.8	7.2		

S** Significant at 0.01 Level

Interpretation Table 1

The mean score of the experimental group (74.8) is higher than that of the control group (62.4), indicating that students exposed to blended learning demonstrated greater engagement. The calculated t-value (4.12) is significant at the 0.01 level, which shows that the difference between the two groups is statistically significant. Hence, the null hypothesis (H_{01}) is rejected. This suggests that blended learning has a positive effect on student engagement.

Table 2 Independent Sample t-Test of post-tests of Control Group and Experimental Group for Academic Achievement

Group	N	Mean	SD	t-value	Level of Significance
Control Group	30	36.5	6.2	3.85	S** (0.01 level)
Experimental Group	30	44.7	5.8		

S** Significant at 0.01 Level

Interpretation Table 2

The experimental group obtained a higher mean score (44.7) compared to the control group (36.5), indicating better academic performance. The t-value (3.85) is significant at the 0.01 level, confirming that the difference is not due to chance. Therefore, the null hypothesis (H_{02}) is rejected. This indicates that blended learning significantly improves academic achievement among B.Ed. students.

Table 3 Relationship Between Student Engagement and Academic Achievement

Variables	r-value	Level of Significance
Engagement & Achievement	0.68	Significant

Interpretation Table 3

The correlation coefficient ($r = 0.68$) indicates a strong positive relationship between student engagement and academic achievement. This suggests that students who are more engaged in the learning process tend to perform better academically. Hence, the null hypothesis (H_{03}) is rejected.

FINDINGS

- Blended learning significantly improved student engagement among B.Ed. students. The experimental group showed higher engagement levels compared to the control group, indicating that the integration of online and face-to-face learning increased students' participation and interest.
- Academic achievement of students was significantly higher in the blended learning group than in the traditional teaching group. This suggests that blended learning helped students understand concepts more effectively and perform better in assessments.
- There was a significant difference between the experimental and control groups in both student engagement and academic achievement, confirming the effectiveness of the blended learning approach over the traditional method.
- A strong positive relationship was found between student engagement and academic achievement. This indicates that students who were more actively involved in the learning process tended to achieve better academic results.
- Blended learning promoted active participation, interaction, and independent learning, which contributed to improved learning outcomes among B.Ed. students.

Education Implications

The findings of the present study have several important implications for teaching and learning, particularly in the field of teacher education.

1. Integration of Blended Learning in Curriculum:

Teacher education programs should incorporate blended learning approaches into their curriculum, as it has been shown to enhance both student engagement and academic achievement. This integration can help create more interactive and flexible learning environments.

2. Promoting Active Learning:

The results highlight the importance of using teaching methods that actively involve students. Blended learning encourages participation, collaboration, and independent learning, which are essential for effective knowledge construction.

3. Use of Technology in Teaching:

The study emphasizes the need for educators to effectively use digital tools such as online platforms, multimedia resources, and virtual discussions. This can improve the overall learning experience and make teaching more dynamic and engaging.

4. Teacher Training and Professional Development:

Teacher educators should be trained in the use of blended learning strategies so that they can implement them effectively in classrooms. This will also help future teachers develop confidence in using technology for instructional purposes.

5. Enhancing Student Engagement:

Since student engagement is closely linked to academic achievement, educators should adopt strategies that promote active involvement, such as interactive tasks, online discussions, and collaborative activities.

6. Improving Learning Outcomes:

Educational institutions can use blended learning as a tool to improve overall academic performance by providing diverse learning opportunities that cater to different learning styles.

CONCLUSION

The present study examined the impact of the blended learning approach on student engagement and academic achievement among B.Ed. students. The findings clearly indicate that blended learning is more effective than traditional teaching methods in enhancing both engagement and academic performance. Students exposed to blended learning demonstrated higher levels of participation, interest, and involvement in learning activities, which contributed to better academic outcomes.

The integration of online resources with face-to-face instruction created a more interactive and flexible learning environment, allowing students to engage with the content in multiple ways. This approach not only supported better understanding of concepts but also encouraged independent and self-directed learning.

The study also revealed a strong positive relationship between student engagement and academic achievement, suggesting that increased engagement plays a key role in improving students' performance. This highlights the importance of adopting teaching strategies that actively involve students in the learning process.

In the context of teacher education, the use of blended learning is particularly significant, as it prepares future educators to incorporate technology effectively into their teaching practices. Therefore, it can be concluded that blended learning is a valuable instructional approach that can enhance the quality of teaching and learning in B.Ed. programs.

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