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# Relationship between Student Engagement and Academic Performance in Blended Learning Environments

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**ABSTRACT**

**Blended learning emerged as a solution to the rising need for a more participatory and adaptable approach to education that, ultimately, improves students' performance in the classroom. Blended learning is an educational style that incorporates the benefits of both online and conventional face-to-face training. This research looks at the correlation between blended learning and improved academic performance among Kolkata, West Bengal, secondary school students. An organized Student Engagement in Blended Learning Scale and students' yearly test scores were used to gather data. To make sure we covered all the bases, we used primary and secondary sources. Most students are very engaged in blended learning, and over half of those students do very well in school, according to the results. Statistical research validated the observation of a large positive correlation between student involvement and performance, further supporting the idea that engagement significantly improves academic outcomes. In order to improve student engagement and academic performance in secondary school, the study stresses the need of encouraging blended learning approaches.**

**Keywords: Students Engagement, Academic Performance, Learning, Online, Classroom**

## INTRODUCTION

As the pandemic drastically altered methods of instruction, the education system was among the worst hit by the COVID-19 epidemic. Likewise, technology undergoes periodic evolutions. A new way of thinking about education, instruction, student progress, and evaluation is required as we enter the digital era. Teachers may carry out a remarkable method of instruction by integrating technology and the internet into their classrooms. Teachers aim to create classroom environments where every student may succeed academically. The widespread effects of automation on classroom instruction have prompted yet another call for the integration of ICT into curricula in order to meet the expectations of students in the twenty-first century.

Across the world, more and more people are turning to technology as a tool for education, thanks to the multiplicative effect of technological advancements. However, it is still difficult to apply technology-based learning resources successfully; instead, a well-designed learning model is more important for success. This widespread use of technology makes it critical to design pedagogical activities that extend well beyond the confines of traditional classrooms.

Blended learning is changing the way schools operate by integrating online and digital resources with more conventional classroom methods of teaching. Teachers, academics, and politicians are all very interested in its possible ability to pique students' interest in learning through increased participation and engagement. There are a number of factors that must be addressed while developing integrated learning, including learning directives, the quality of the learning experience, learning resources, and verified teaching techniques. The convention's administration of a blended learning framework will allow for the differentiation of educational tasks, the reduction of students' anxiety, and the enhancement of learning motivation.

Teachers and students both benefit much from the classroom environment. As our society develops and the importance of student education rises, the capacity to assess the efficacy of classroom teaching becomes more and more vital. Recognized as a critical factor in educational achievement is student engagement, a complex notion including the behavioral, emotional, and cognitive aspects of learning. Both academic success and the acquisition of 21st-century critical abilities and competences are impacted by it. The subject of how blended learning experiences affect student engagement is becoming more important as schools work to accommodate a more diverse student body.

Concerns about the lack of consensus on the foundational concepts are growing, despite the fact that student engagement is a better indication of learning. Student involvement has emerged as a major issue in higher education due to the increasing prevalence of distance learning. Furthermore, blended learning has been established and actively incorporated by higher education institutions as a learning modality. Blended learning was crucial to the creation of a new educational paradigm in secondary education, which would enable high school students to acquire the abilities required to succeed in vocations in the twenty-first century. Furthermore, there is strong evidence that blended learning has a favorable effect on student outcomes, as seen in secondary school students' engagement and academic achievement. Results from several research show that students are more engaged and do better in school when online and face-to-face learning are combined.

Differentiation in the classroom and student participation in class projects are two areas where education stakeholders are looking for fresh ideas as a result of the proliferation of new technologies. International studies have shown that in order to adequately educate students for the challenges of today's society, classrooms in the twenty-first century need to include technology, promote cooperation, inspire reflection and inquiry, facilitate conversation, and put the learner at the center. Furthermore, blended learning models typically prioritize student engagement and make use of technology. But technology doesn't magically make students smarter or more invested; it just makes learning more interesting and engaging when used strategically to augment teacher-led lessons. Thanks to shifting demographics, new technologies, and a focus on personalized instruction, today's educational scene is changing at a dizzying rate.

## REVIEW OF LITERATURE

Zeng, Chen. (2023)This article investigates the impact of the COVID-19 epidemic on students' academic achievement and the degree to which their interaction with the Blackboard learning management system (LMS) influences it. There is substantial evidence that students' academic achievement improves when they are more actively involved with Blackboard. Additionally, we discover that various blended learning formats have varied associations between student involvement and academic success. The benefits are especially noticeable when combined with synchronous online courses and in-person tutoring. Because COVID-19 is an ever-changing environment, this research shows that students need to be actively involved in a blended learning method so that they may communicate with their professors and classmates even when there are social limits.

Buchan, Alexandra & Precey, Robin. (2023)More study is needed to identify best practices and maximize student involvement in Blended Learning, which is a complex and ongoing transformation throughout education. This article looks at the reality of this change. The purpose of this mixed-methods study is to investigate, at a prestigious English university, what variables explain the high degree of student involvement. Each module is rated as having 'High', 'Medium', or 'Low' student engagement based on the median number of days students visited the Virtual Learning Environment [VLE] over the semester (n=562). Additional information is provided via a thematic analysis of semi-structured interviews with the module leaders, which complements the results. The findings indicated that effective Blended Learning courses have more formative assessments, more recordings, are delivered in a way that works for the students, and have high-quality resources on the VLE rather than just a lot of them. Module Leaders who want their seminars and lectures to be as interactive and engaging as possible for their students should combine active learning with didactic teaching, be very passionate about the topics they cover, and be very proficient with the educational technologies at their disposal. We may infer that we can change the way Module Leaders construct and teach their Blended Learning courses, which might lead to a change in student involvement. Senior leaders may learn a lot from this, especially on their own understanding of Blended Learning, its relevance to their vision and values, and potential tactics for promoting and preparing for best practices.

Argyriou, Paraskevi et al., (2022) This research aimed to determine whether there was a correlation between students' participation in various blended learning activities and their performance on an online multiple-choice test administered to undergraduates taking a cognitive psychology course. Results on the final test were predictive of how well students did on the weekly online quizzes. We talk about the findings in the context of learning analytics for figuring out which students need more help and how to use online learning tools to boost student engagement and performance. Given that there was only one significant predictor found, more study is needed to determine whether other characteristics impact academic accomplishment in online blended learning.

Halverson, Lisa & Graham, Charles. (2019) Important educational outcomes, such as academic achievement and satisfaction, are correlated with learner engagement. Research on learner involvement in mixed environments is underway, but there is currently no theoretical framework to direct studies or practices, and the definitions and operationalizations of engagement are not very clear or consistent. In order to determine if changes in instructional approaches lead to better engagement, it is vital to develop definitions, models, and assessments of the characteristics that indicate learner engagement. Blended learning and learning more generally are the focus of this article's literature review, which seeks to identify the dimensions most pertinent to these contexts. Offering examples of studies evaluating these engagement indicators in technology-mediated learning situations, we give a feasible conceptual framework for engagement that encompasses emotional and cognitive markers. Lastly, we propose further study to

validate the model, which we think may bolster real-time, minimally invasive, and highly generalizable research on blended learning engagement in many kinds of topic areas.

Kunjumuhammed, Siraj &Maskari, Azzah. (2018)The primary goal of this research was to assess how a higher education institution (HEI) in the Sultanate of Oman's students felt about the blended learning instructional design. Blended learning was used to teach a bachelor's degree course, and students were asked to rate the effectiveness of the method. The Sultanate of Oman's Ministry of Manpower oversees seven institutions, including Ibra College of Technology, where the survey was carried out. This past summer, students may choose between a hybrid classroom and an online format for a course in human resource management and business strategy. In order to get students' opinions at the conclusion of the semester, we gave them a structured survey to fill out. The study's findings showed that students had a favorable impression of blended learning classes. There has to be a change to more focused, realistic evaluation techniques to evaluate the traits of graduates, and there has to be training and development programs for both faculty and students, according to the study. It appears that the blended learning course improved student engagement, learner autonomy, the course's relevance to real-life contexts, and the course's flexibility.

Saritepeci, Mustafa & Cakir, Hasan. (2015)The objective of this research is to determine how middle school students' involvement and performance in the classroom are impacted by a blended learning setting. The researchers used a quasi-experimental approach with a pre- and post-test control group. A total of 55 students served as controls and 52 participated in the experiment. When compared to students in traditional classroom settings, those in blended learning environments substantially outperformed their counterparts in terms of average academic achievement. There is a medium-sized impact size of blended learning on students' academic achievement levels. Concerning the level of participation from the students in both groups, no statistically significant differences were found. On the other hand, when comparing blended learning to traditional classroom instruction, we see a significant improvement in students' average engagement levels.

Vaughan, Norman. (2014)In today's universities, blended learning and student involvement are getting a lot of attention. This article shows how a blended learning strategy and collaborative learning apps can be used to create and back assessment activities that get students more involved with the course material, their teachers, and outside experts, which in turn boosts their grades and happiness.

Holley, Debbie & Dobson, Caroline. (2008)The university atmosphere may be seen by some non-traditional students as distant, impersonal, and unsupportive, according to research. The goal of the 'Quickstart' initiative is to help first-year students overcome the anxiety that often accompanies the start-of-the-year transition by integrating online learning with more conventional classroom instruction. A total of 1,000 students from two different regions took part in the initiative. To assess the project, three sets of data were analyzed: server statistics showing 40,358 successful page requests in the first four weeks of instruction; anonymous responses from students to an online survey at the end of the course and excerpts from their reflective journals; and a researcher's perspective on the student experience in the classroom. Students' perspectives on their own learning experiences and how they integrate classroom and personal time are both illuminated by the findings. Traveling to a modern learning location (the Tate Modern Art Gallery) as part of a collaborative learning experience prevented students from being too isolated by using technology; on the contrary, the technology facilitated more active discussion and engagement in the activities. Students visited the Tate Modern and used SMS text messages to facilitate group discussions; they formed strong bonds in seminar groups and used weekly online assignments completed "outside" the classroom to spark debate and discussion "inside" the classroom; students' reflective writing at the end of the semester demonstrated the importance of the early "friendship" groups in helping them adjust to university life.

## RESEARCH METHODOLOGY

**Research Design**

The present study adopted a descriptive survey research design.

**Sources of Data Collection**

The study utilized both primary and secondary sources of data.

- **Primary data:** Primary data were collected using a structured Student Engagement in Blended Learning Scale and their annual examination marks.
- **Secondary data:**For this study, we relied on secondary sources such as books, journals, and online educational databases.

**Sampling Technique**

The sample was chosen using a probability sampling technique.

**Sample**

A sample of 310 secondary school studentswas selected for the study.

**Tools for Data Collection**

A Student Engagement in Blended Learning Scale was created and validated to gather data. The scale assessed students' involvement in a mixed learning environment along many aspects, including behavioral, emotional, and

cognitive.

**Statistical Techniques Used**

The collected data were analyzed using appropriate statistical techniques, namely:

- Mean and Standard Deviation
- Frequency and Percentage Analysis
- Pearson's Product Moment Correlation to examine the relationship between student engagement and academic performance
- Paired Sample t-test to analyze differences where applicable

## DATA ANALYSIS AND INTERPRETATION

**Table 1: Gender of the respondents**

| Particulars | Frequency | Percentage |
|---|---|---|
| Male | 158 | 50.97% |
| Female | 152 | 49.03% |
| Total | 310 | 100% |

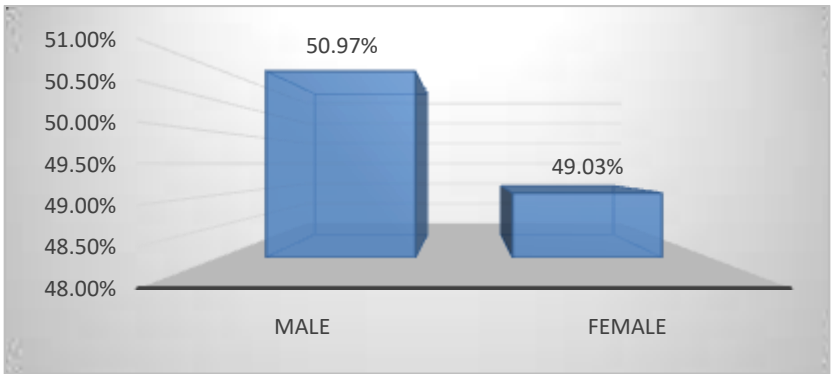


**Figure 1: Gender of the respondents**

According to Table 1, There are 158 male students (50.97%) and 152 female students (49.03%) in the entire sample.

**Table 2: Type of Schoolof the respondents**

| Particulars | Frequency | Percentage |
|---|---|---|
| Government School | 210 | 67.74% |
| Private School | 100 | 32.26% |
| Total | 310 | 100% |

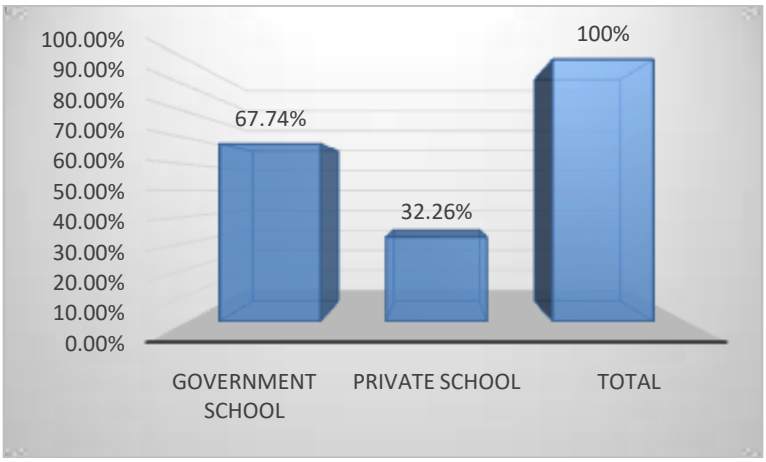


**Figure 2: Type of Schoolof the respondents**

A large majority of the students, 210 out of 310 (60.74%), attend public schools, whereas a small percentage, 100 (32.26%), attend private schools, according to Table 2.

**Table 3: Distribution of Student Engagement Levels in Blended Learning**

| Particulars | Frequency | Percentage |
|---|---|---|
| High | 169 | 54.5 |
| Average | 124 | 40.0 |
| Low | 17 | 5.5 |
| Total | 310 | 100.0 |

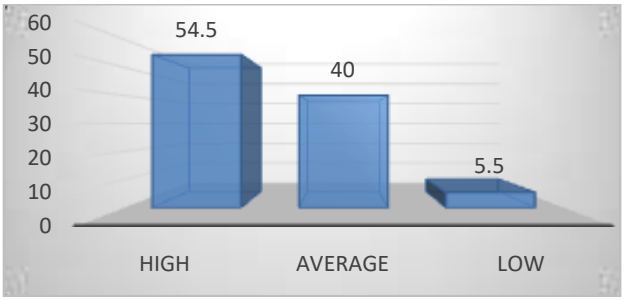


**Figure 3: Distribution of Student Engagement Levels in Blended Learning**

It is shown in the table 3 among the students who participated in blended learning activities, 169 (54.5%) showed a high degree of involvement. A tiny percentage, 17 students (5.5%), exhibit a poor degree of involvement, whereas 124 students (40%) exhibit an average level.

**Table 4: Distribution of Academic Performance Levels among respondents**

| Particulars | Frequency | Percentage |
|---|---|---|
| High | 153 | 49.5 |
| Average | 126 | 40.5 |
| Low | 31 | 10.0 |
| Total | 310 | 100.0 |

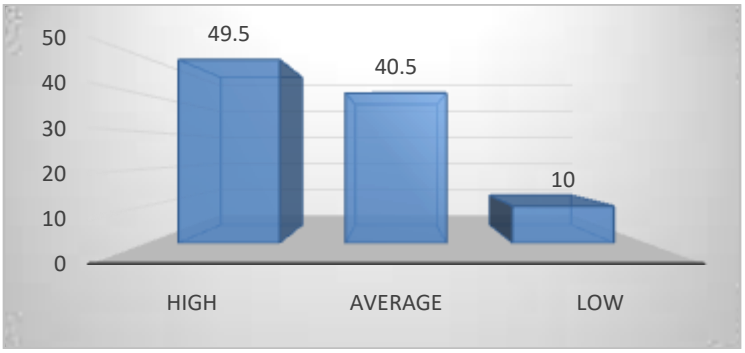


**Figure 4: Distribution of Academic Performance Levels among respondents**

According to table 4, 153 students, or 49.5% of the total, had excellent academic achievement, suggesting that the learning outcomes were highly effective. Out of the total number of students, 126 (40.5%) achieved an average level and 31 (10%) achieved a poor level.

**Table 5: Correlation between Student Engagement in Blended Learning and Academic Performance**

| Variables | N | df | 'r' value | p- value | Remarks |
|---|---|---|---|---|---|
| Student Engagement in Blended Learning and Academic Performance | 310 | 308 | 0.712 | 1.298 | Not Significant at 0.05level |

*Significant at 0.05 level.

Among 310 secondary school students, table 5 displays the association between academic success and student

involvement in blended learning. There is a substantial positive association between more participation in blended learning and improved academic achievement, as indicated by the correlation coefficient (r = 0.712). This correlation is not, however, significant at the 0.05 level, as shown by the p-value of 1.298.

**Table 6: Influence of Student Engagement in Blended Learning on Academic Performance**

| Variables | Mean | S.D. | df | 'r' value | 't'-value | p- value | Remarks |
|---|---|---|---|---|---|---|---|
| Student Engagement in Blended Learning | 78.5 | 8.90 | 308 | .180 | 8.56 | *0.00 | Not Significant at 0.01 level |
| Academic Performance | 68.02 | 8.25 | | | | | |

Table 6 shows how 310 secondary school students' participation in blended learning affected their grades. The average academic performance score is 68.02 with a standard deviation of 8.25, and the average student engagement score is 78.5 with a standard deviation of 8.90. Despite the low correlation (r = 0.180), student engagement in blended learning is positively associated with academic performance at the 0.01 level, as shown by the t-value (8.56) and p-value (0.00). This suggests that higher engagement in blended learning leads to improved academic outcomes among secondary students.

## CONCLUSION

The importance of student participation in blended learning on secondary school students' academic achievement is emphasized in this study. Based on the data, it's clear that most students are really involved in what they're learning, whether it's in class or online. Students who are more active in blended learning typically do better academically, as seen by the favorable impact this involvement has on their grades. The study's statistical analysis further demonstrated that involvement significantly and positively affects academic accomplishment, adding credence to the substantial association between engagement and performance. In a larger sense, the results imply that blended learning approaches can improve education generally by encouraging active learning, raising student motivation, and bolstering academic achievement.

Therefore, it is the responsibility of schools and teachers to promote and support blended learning settings, where students have access to both conventional and digital learning tools and methodologies, and where they are guided and supported to make the most of each. The research confirms that active participation from students is crucial to the development of high-quality education in the modern day.

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