



## A COMPARATIVE STUDY OF BLENDED LEARNING AND TRADITIONAL LEARNING: EXPLORING ACADEMIC ACHIEVEMENT IN SECONDARY SCHOOL

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### Abstract

*This research paper investigates the effectiveness of blended learning compared to traditional learning methods in enhancing academic achievement among secondary school students. The study examines the academic performance of students exposed to both blended learning and traditional learning environments across science subjects. Data was collected through academic records analysis posttest experimental design. The findings indicate that blended learning approaches have a positive impact on academic achievement, providing valuable insights for educators and policymakers to improve teaching methods and student outcomes.*

**Keywords:** *Blended learning, Traditional teaching, Academic Achievement*

### 1. Introduction:

The realm of education has perennially been at the crossroads of evolution, especially in how knowledge is imparted to learners across the globe. With the advent of digital technology, traditional teaching methodologies have been augmented, or in certain contexts, supplanted by innovative instructional strategies, among which blended learning stands prominent. Education is constantly evolving, driven by advancements in technology, changes in pedagogical approaches, and the evolving needs of learners. One significant development in recent years is the emergence of blended learning, which integrates traditional face-to-face instruction with online learning components. Blended learning has gained traction in educational settings due to its potential to enhance student engagement, promote personalized

learning, and improve academic outcomes. The integration of technology is a crucial aspect of blended learning. Picciano (2017) emphasizes the importance of Learning Management Systems (LMS) and other technological tools in delivering content and facilitating communication. Virtual Learning Environments (VLEs) and multimedia resources play a pivotal role in engaging learners in both physical and virtual settings (Bonk & Graham, 2005).

However, its effectiveness compared to traditional learning methods remains a topic of debate and investigation, particularly in secondary education settings. Johnson, L., Smith, K., & Brown, M. 2023 and Zhang, L., & Liu, Q. (2023) in their systematic review and meta-analysis synthesized findings from multiple studies to examine the impact of blended learning on academic achievement across different educational levels. Results indicated a positive effect of blended learning on student performance, with variations based on factors such as instructional design, technology use, and subject area

### **1.1 Background:**

Blended learning represents a shift from traditional, one-size-fits-all instructional methods by incorporating digital technologies and online resources into the learning process. It offers a flexible and adaptive approach to education, allowing students to access content, interact with peers, and engage in activities both in the classroom and through online platforms. The flexibility of blended learning caters to diverse learning styles and preferences, fostering a more student-centered approach to education. Lee, Y., & Kim, D. (2023) Garcia, A., & Perez, L. (2022) in his study found that this integrative review synthesized findings from diverse studies to examine the relationship between blended learning and student academic achievement. The review identified several factors contributing to the effectiveness of blended learning, including instructional design principles, technology integration, and teacher support.

Traditional learning, on the other hand, typically involves face-to-face instruction delivered in a classroom setting without significant reliance on digital technologies. While traditional methods have been the cornerstone of education for centuries, they may not always meet the needs of today's learners, who are increasingly accustomed to technology and digital media in their everyday lives.

Academic achievement, often measured through standardized test scores, grades, and qualitative assessments, serves as a critical lens through which the efficacy of educational methodologies can be evaluated. Studies such as the one conducted by Means et al. (2010) in

their meta-analysis "Evaluation of Evidence-Based Practices in Online Learning" have shown that students who engage in blended learning environments tend to outperform their peers in traditional settings. The hybrid model allows for a more personalized learning experience, catering to diverse learning styles and paces, which can be instrumental in enhancing student engagement and understanding.

Furthermore, the blend of synchronous and asynchronous learning activities in a blended environment provides students with the flexibility to manage their learning paths, potentially leading to improved academic outcomes. This flexibility, coupled with the ability to revisit online materials, enables a deeper understanding of course content. However, it is imperative to acknowledge that the success of blended learning models is contingent upon several factors, including the quality of online resources, the role of the instructor in facilitating both online and offline components, and the students' level of self-discipline and motivation.

Comparatively, traditional learning environments have the advantage of direct teacher-student interaction, which can be crucial for maintaining discipline, immediate feedback, and fostering a sense of community and collaboration among students. Nevertheless, the one-size-fits-all approach of traditional methodologies often fails to address individual learning needs, potentially hindering personalized academic achievement.

### **Rationale:**

The comparative study of blended learning and traditional learning in secondary schools is motivated by several key rationales:

While blended learning has shown positive effects on academic achievement, it also presents challenges. A study by Vaughan et al. (2013) highlights the importance of addressing issues such as student readiness, access to technology, and instructor training to maximize the benefits of blended learning and enhance academic success. . Improving academic achievement: Ultimately, the goal of education is to facilitate student learning and academic success. While there is anecdotal evidence suggesting that blended learning may lead to improved academic achievement, empirical research is needed to validate these claims. By comparing the academic performance of students in blended learning and traditional classrooms, this study seeks to determine whether blended learning is associated with higher levels of achievement in secondary education. These findings can inform decision-making at the institutional level and guide efforts to improve educational outcomes for all students. In conclusion, the comparative study of blended learning and traditional learning in secondary schools is a timely and relevant topic that holds significant implications for education policy

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and practice. By investigating the impact of blended learning on academic achievement, student engagement, this research seeks to provide valuable insights into the effectiveness of innovative teaching methodologies. By bridging the gap between theory and practice, this study aims to empower educators and policymakers to make informed decisions that promote student success in the digital age. This research aims to conduct a comparative study to explore the impact of blended learning on academic achievement in secondary schools.

### 1.3 OBJECTIVES :

1. To compare academic achievement in science of secondary school students taught through blended learning and traditional learning approach.
2. To compare academic achievement in science of secondary school students taught through blended learning with respect to gender.

### 1.4 HYPOTHESIS:

1. There would be no significant difference between academic achievement in science of secondary school students taught through blended learning and traditional learning approach.
2. There would be no significant difference between academic achievement in science of secondary school students taught through blended learning with respect to gender.

**STATEMENT OF THE PROBLEM:** A Comparative Study of Blended Learning and Traditional Learning: Exploring Academic Achievement in Secondary School

## III. METHOD OF THE STUDY

### 3.1 Research Design

The study was based on Experimental method (Quasi experiment design ). The design of the study was Post test design only.

Research Design ( Paradigm of the research design)

Group	N	Treatment		Post Test
Experimental Group	40	Blended approach	learning	Academic achievement
Control Group	40	Traditional approach	learning	Academic achievement

### 3.2 POPULATION OF THE STUDY

Students of Secondary School Jamshedpur were the population.

### 3.3 DELIMITATION OF THE STUDY

Area of the population Jamshedpur only.

Secondary school was CBSE affiliated secondary school only.

Group of students belongs to Science subject only.

Class IX only

### 3.4 SAMPLE OF THE STUDY

100 secondary school student of Jamshedpur select by purposive sampling technique.

### 3.5 Treatment Procedure

For this study, two sections of class nine were selected; There were 50 students in each section but researcher consider only 40 students ,who were regular throughout the experiment .one section was treated as experiment group and the other as control group. The control group was taught for 30 days with traditional method with chalk and duster under 5E lesson plan .For the experimental group a Google classroom were created .where, Online material PPT's ,downloaded videos and online links related to the topic where provided .The Experimental group were taught through online and offline mode. After 30 days, children of both the groups were assessed with 50 MCQ and the results obtained were analyzed.

### ANALYSIS AND INTERPRETATION OF DATA

Data were tabulated and analyzed hypothesis

#### HYPOTHESIS : I

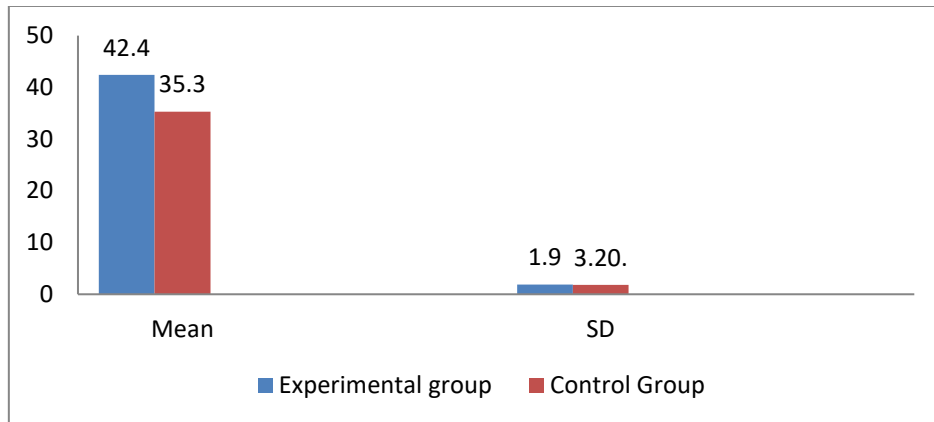
There would be no significant difference between academic achievement in science of secondary school students taught through blended learning and traditional learning approach.

**Table : I ( Mean achievement score of Experimental and control group)**

Variable	Group	Mean	SD	df	T-ratio	Level of significant
Academic achievement	Experimental Group (40)	42.40	1.90	98	6.0366	Extremely significant
	Control Group (40)	35.30	3.20			

The data presented in the table I shows that the mean achievement score of Experimental group is 42.40 and S.D. is 1.90 and the mean achievement score of control group is 35.30 and S.D. is 3.20. This shows that Experimental group has an upper age on their counterparts.

Which mean also found to be statistically significant as the t-value was 6.036 which was higher than the table t-value at 0.01 level of significance and 98 df.



**Fig. I .** The above table provided evident that academic achievement of experimental group and control group was extremely significant .So, result had not come according to the hypothesis. So hypothesis I is rejected.

#### Table ..II

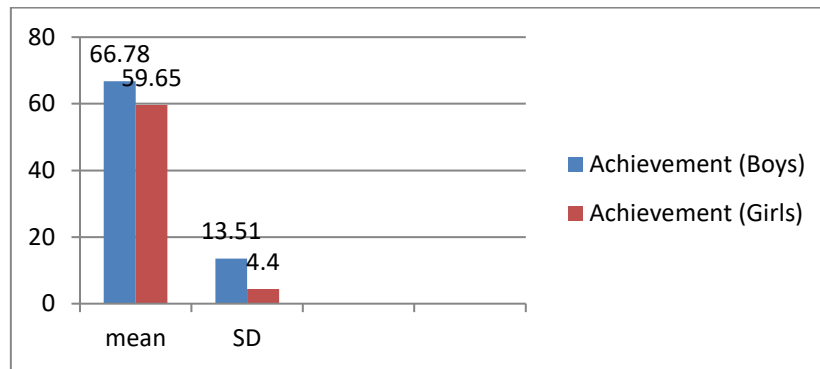
2. There would be no significant difference between academic achievement in science of secondary school students taught through blended learning with respect to gender.

In order to list the hypothesis the mean score of academic achievement in science of secondary school students taught through blended learning with respect to gender were computed . To assess the difference between the two value is calculated which is shown in table II..

**Table II. Mean Achievement score of Boys and Girls of Experimental group**

Sl. No.	Variable	Experimental Group	Mean	SD	df	T value	Level of significant
1.	Academic Achievement	Boys(22)	66.78	13.51	98	0.004	Not significant
		Girls(18)	59.65	10.63			

The data presented in the table II shows that the mean achievement score of Boys is 66.78 and S.D. is 13.51 and the mean achievement score of Girls is 59.65 as S.D.is 10.63.This shows that boys has an upper age over their counterparts. Which mean its found to be statistically not significant as the t-value was 0.004 which was less than the table t-value at 0.01 level of significance and 98 df.

**Fig. II****FINDING AND CONCLUSION:**

Based on the above results, the conclusion of the research is that the reason behind the better academic achievement of blended learning than the traditional learning may be that ,If teacher teach with blended learning s/he can satisfy the needs of diverse learners. When teachers provide online content along with physical presence through a synchronous way then it develop interest in the student towards learning. Either content is provided through asynchronous way under Blended Learning, children study only when they want to study. It improve their attention and interest towards studies. So it improves academic achievement of secondary school students. Based on the above result researcher wants to use more and more online content, videos and classroom teaching in the school setup. The above finding is also supported by the researcher Najeh Rajeh Alsalhi, Mohd. Elmagzoub Eltahir, Sami Sulieman Al-Qatawneh, Christopher Michael Turpin University of South Carolina – Columbia and many others.

**Educational Implication of the study..**

1. Addressing the increasing adoption of blended learning approaches: As educational institutions integrate technology into their teaching methods, understanding the comparative effectiveness of blended learning and traditional approaches becomes crucial for informed decision-making.
2. Informing instructional design and pedagogical practices: Insights from this study can inform educators and curriculum developers about the most effective strategies for optimizing student achievement and engagement in secondary education.
3. Supporting student-centered learning environments: By exploring student perceptions and experiences, the study can shed light on how blended learning can cater to diverse learning needs and preferences, fostering a more inclusive and personalized learning experience.

4. Contributing to evidence-based policy-making: Findings from this research can provide policymakers with empirical evidence to guide the implementation of educational policies and investments in technology-enhanced learning initiatives in secondary schools.

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