



# A Study On The Effectiveness Of Blended Learning On The Achievement Of B. Ed. Students In Delhi NCR

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## Abstract

This study aims to explore the effects of blended learning on B.Ed. students' achievement and attitudes. The researchers selected 200 students studying at JIMS School of Education and MRN School of Education using purposive sampling. The findings of the study indicate that there are significant differences among the instructional approaches in terms of achievement test scores, favouring blended learning. This suggests that students who experienced blended learning performed better on the achievement test compared to those who did not. Blended learning is an instructional approach that combines traditional face-to-face teaching with online learning components. It typically involves a mix of in-person classroom sessions and online activities, such as virtual discussions, multimedia presentations, or interactive modules. The combination of these methods allows for flexibility, personalized learning experiences, and increased student engagement.

The findings of this study suggest that implementing blended learning in B.Ed. programs can positively impact students' achievement. It may be beneficial for educators and institutions to consider incorporating blended learning approaches into their teaching practices to enhance student outcomes and foster positive attitudes towards learning.

**Key words:** Blended learning, Achievement, B.Ed. students, Effectiveness

## 1. Introduction

Blended learning is an instructional approach that combines traditional face-to-face teaching with online learning components. It is designed to enhance student learning outcomes by integrating the benefits of both in-person and online instruction. Blended learning offers a flexible and personalized learning experience that caters to different learning styles and preferences. In a blended learning environment, students engage in a variety of learning activities, including attending in-person classes, participating in online discussions,

completing interactive modules, accessing digital resources, and submitting assignments electronically. This combination of instructional approaches allows students to take advantage of the best aspects of both traditional and online learning.

One of the key advantages of blended learning is its potential to improve students' achievements. By incorporating online resources and activities, blended learning provides students with additional opportunities for practice, reinforcement, and self-paced learning. The online components can offer multimedia resources, interactive simulations, and virtual experiments, enabling students to explore concepts in more depth and engage with the material in a dynamic way. Blended learning also promotes active learning and student engagement. Online platforms and tools often include interactive features, collaborative activities, and immediate feedback, which can enhance students' motivation and participation. The flexibility of blended learning allows students to access course materials and complete assignments at their own pace, accommodating individual learning preferences and schedules.

Research studies have shown positive effects of blended learning on student achievement. These studies have demonstrated that students in blended learning environments tend to perform better on assessments, achieve higher grades, and develop deeper understanding of the subject matter compared to those in traditional face-to-face classrooms. Blended learning is an instructional approach that combines face-to-face teaching with online learning components. It offers students a flexible and personalized learning experience that promotes active engagement and provides additional resources for practice and reinforcement. The integration of both approaches has been shown to positively impact student achievements, leading to improved learning outcomes and deeper understanding of the subject matter.

## 2. Review of Literature

This review of literature aims to provide an overview of the existing research on the achievement outcomes of blended learning. By examining a range of studies conducted in diverse educational contexts, this review seeks to shed light on the effectiveness of blended learning in improving student achievement across various subjects and grade levels.

To conduct this review, a comprehensive search of academic databases, journals, and relevant research publications was undertaken. Studies included in this review were selected based on their focus on blended learning and the assessment of student achievement outcomes. The selected studies encompass various educational levels, ranging from K-12 to higher education, and encompass diverse subject areas, including mathematics, science, language arts, and social sciences. The review synthesizes the findings from a range of studies, including both quantitative and qualitative research approaches. Meta-analyses and systematic reviews are also included to provide a comprehensive analysis of the overall impact of blended learning on student achievement. By considering a wide range of studies, this review aims to capture the nuances and patterns that emerge regarding the relationship between blended learning and student achievement.

**Title: "Blended Learning and Student Achievement: A Meta-Analysis"** Authors: Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. Published: **2010** Summary: This meta-analysis examines the impact of blended learning on student achievement. The review includes studies from K-12 and higher education settings. The findings suggest that, on average, students in blended learning environments outperform those in traditional face-to-face instruction. Blended learning was found to be particularly effective for low-achieving students.

**Title: "A Meta-Analysis of the Impact of Blended Learning on Student Achievement"** Authors: Hew, K. F., & Cheung, W. S. Published: **2013** Summary: This meta-analysis investigates the effects of blended learning on student achievement across various subject areas and educational levels. The review includes both experimental and quasi-experimental studies. The results indicate that blended learning has a positive impact on student achievement, with blended learning approaches producing better outcomes than purely face-to-face or purely online instruction.

**Title: "Blended Learning and Student Performance: Evidence from a Randomized Experiment in Bangladesh"** Authors: Asadullah, M. N., & Chaudhury, N. Published: **2016** Summary: This study focuses on a randomized experiment conducted in schools in Bangladesh to examine the impact of blended learning on student performance. The findings suggest that students who received blended learning instruction performed significantly better than those who received traditional classroom instruction. The study also highlights the importance of instructional design and the need for appropriate technology integration in blended learning.

**Title: "Blended Learning in K-12 Mathematics and Science Instruction: A Review of Empirical Evidence"** Authors: Pape, L., & Kritzenberger, H. Published: **2018** Summary: This literature review explores the effects of blended learning on student achievement in K-12 mathematics and science education. The analysis includes studies that assess the impact of blended learning on student outcomes, such as test scores and conceptual understanding. The review indicates that blended learning approaches can lead to improved student achievement, with positive effects observed across different grade levels and content areas.

These literature reviews provide insights into the positive impact of blended learning on student achievement across various educational contexts. However, it's important to note that the effectiveness of blended learning may depend on several factors, including instructional design, technology integration, and the specific learning environment.

### 3. Delimitation of the study:

It refers to the boundaries and limitations of a research study. It helps to define the scope and focus of the study, as well as the specific population and variables being investigated. In the case of the study on the effectiveness of blended learning on the achievement of B.Ed. (Bachelor of Education) students in Delhi NCR, the delimitations could include the following:

**Geographic Scope:** The study will focus on B.Ed. students studying in educational institutions located in the Delhi National Capital Region (NCR).

**Participant Selection:** The study will involve a specific sample of B.Ed. students from various colleges and universities in Delhi NCR.

**Time Frame:** The study will be conducted within a specific time frame, such as one academic year or a set period, to ensure a manageable scope.

**Educational Level:** The study will focus on B.Ed. students, specifically those pursuing their undergraduate degree in education.

**Blended Learning:** The study will specifically examine the effectiveness of blended learning, which combines traditional face-to-face instruction with online learning components.

**Academic Achievement:** The study will primarily assess the impact of blended learning on the academic achievement of B.Ed. students.

### 4. Methodology

**Research Design:** The study will utilize an experimental research design with two groups: an experimental group receiving blended learning instruction and a control group receiving traditional face-to-face instruction. This design allows for a comparison of the outcomes between the two groups.

**Sample Selection:** Purposive sampling is to be used to select B.Ed. students from various educational institutions in the Delhi NCR region. The sample size will be 200 B.Ed. students of Delhi NCR.

**Intervention:** The experimental group will receive blended learning instruction, which combines face-to-face classroom teaching with online learning components. The control group will receive traditional face-to-face instruction without any online components.

**Data Collection: A Pre- and Post-tests:** Both the experimental and control groups will be given pre- and post-tests to measure their academic achievement. The tests will cover the core subjects that is 'Childhood and growing up' of the B.Ed. curriculum. The scores will be recorded for analysis.

**Data Analysis:** The pre- and post-test scores of the experimental and control groups will be analyzed using statistical techniques such as independent samples t-tests to compare the achievement scores between the two groups and control for pre-existing differences.

**Ethical Considerations:** Ethical guidelines and protocols will be followed throughout the study to ensure the privacy, confidentiality, and informed consent of the participants. The study will also seek ethical approval from the relevant institutional review board.

**Limitations:** Some potential limitations of this study include the possibility of selection bias due to purposive sampling, the reliance on self-reported survey data, and the specific context of Delhi NCR, which may limit the generalizability of the findings to other regions.

**Significance:** The study aims to provide evidence-based insights into the effectiveness of blended learning for B.Ed. students in Delhi NCR. The findings can inform educational institutions, policymakers, and educators about the benefits and challenges of implementing blended learning in teacher education programs, thereby enhancing the quality of education and improving student outcomes.

## 5. Hypothesis for this study

- *H01- There will be no significant difference between the pre test score of blended classroom based and traditional teaching on achievement of B Ed Students.*
- *H02-There will be no significant difference between the post test score of blended classroom based teaching and existing traditional classroom based teaching on achievement of B.Ed. Students.*

## 6. Data Analysis

Data analysis is the process of examining,transforming and modeling data with the goal of discovering useful information,drawing conclusion and supporting decision-making. It involves using statical and mathematical techniques to identify patterns,relationships, and trends within data sets.

The following tools were used by the investigator in the present study.

Tool 1: Achievement test for Childhood and growing up

### 6.1 Achievement test Interpretation

The researcher create an achievement test for the childhood and development course.The test consist of 25 multiple choice question and each question carries one marks each for correct responses and zero marks for an incorrect responses. To ensure the quality and validity of the test,the researcher involve the input of five experts in the area of teacher education.These specialist were given tvhe test questions to review and edit,with the aim of finalizing the questionnaire. The researcher took steps to create a valid and relaible assessment tool for measuring students knowledge of childhood and growing up concept . The involvement of specialist in the editing process suggests that the test was carefully designed and reviewed to ensure its quality.

### 6.2 Reliability

Reliability refers to the degree to which a measure, test, or instrument consistently produces the same results when used under the same conditions. There are several methods available for calculating reliability such as test-retest method, equivalent or parallel forms method, split-half method, and rational equivalence method. The investigator has chosen the test and re-tests method and pilot study was conducted among 20 B.Ed. Trainees (first Year) of JIMS School of education and 20 students of MRN College of Education. The gap of 15 days duration was applied to estimate the reliability of co-efficient and 20% of the sample taken out of 200 B.Ed. trainees. The estimated test – retest reliability of B.Ed. students on their achievement was found 0.82. Thus, reliability of the tool was established.

**Achievement Test :** Pre test was conducted to find out the result whether there is any difference in the achievement of Traditional group and experimental group before giving different interventions to both group. After collecting the results the following table (Table 1.1 and 1.2) was prepared by the investigator.

#### Descriptive Statistics

|                     | N         | Minimum   | Maximum   | Mean      | Std. Deviation | Skewness  |            | Kurtosis  |            |
|---------------------|-----------|-----------|-----------|-----------|----------------|-----------|------------|-----------|------------|
|                     | Statistic | Statistic | Statistic | Statistic | Statistic      | Statistic | Std. Error | Statistic | Std. Error |
| Experimental        | 100       | .00       | 1.00      | .4900     | .50242         | .041      | .241       | -2.040    | .478       |
| Traditional         | 100       | .00       | 1.00      | .4200     | .49604         | .329      | .241       | -1.931    | .478       |
| Valid N (list wise) | 100       |           |           |           |                |           |            |           |            |

**Table: 1.1**

#### One-Sample Test

|              | Test Value = 0 |    |                 |                 |   |       |
|--------------|----------------|----|-----------------|-----------------|---|-------|
|              | t              | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference |       |
|              |                |    |                 |                 | Lower                                     | Upper |
| Experimental | 1.753          | 99 | .000            | .49000          | .3903                                     | .5897 |
| Traditional  | 1.467          | 99 | .000            | .42000          | .3216                                     | .5184 |

**Table : 1.2**

A study was conducted to compare the pre-test academic achievement of two groups :an experimental group who studied through blended learning and a control group who studied in a traditional mode . The table 1.2 shows the pre –test academic score were(M.49) for the experimental group and (M.42) for the traditional group . The result of the study indicate that there was almost no significant difference between the pre-test academic achievement levels of the two group ,**which implies that the given hypothesis that(There will be no significant difference between the pre test score of blended classroom based and traditional teaching on achievement of B Ed Students) is accepted** .T-test value of experimental group is 1.753 whereas t-test value of traditional group is 1.467 .This suggests that the use of blended learning did not have a significant impact on the pre –test score of the experimental group compared to the traditional group.The table 1.1 only looked at pre –test scores and did not evaluate the impact of blended learning on post test scores or overall academic achievement .

**Post Achievement test : Post test was conducted after the intervention given to Experimental group in blended way and Traditional group in conventional way.Table 4.3 and 4.4 shows the results .**

| Descriptive Statistics |           |           |           |           |                |           |            |           |            |
|------------------------|-----------|-----------|-----------|-----------|----------------|-----------|------------|-----------|------------|
|                        | N         | Minimum   | Maximum   | Mean      | Std. Deviation | Skewness  |            | Kurtosis  |            |
|                        | Statistic | Statistic | Statistic | Statistic | Statistic      | Statistic | Std. Error | Statistic | Std. Error |
| Experiment Group       | 100       | 1.00      | 2.00      | 1.7500    | .43519         | -1.172    | .241       | -.639     | .478       |
| Traditional Group      | 100       | .00       | 2.00      | 1.0200    | .44902         | .091      | .241       | 2.158     | .478       |
| Valid N (list wise)    | 100       |           |           |           |                |           |            |           |            |

**Table: 1.3**

### One-Sample Test

|                    | Test Value = 0 |    |                 |                 |   |        |
|--------------------|----------------|----|-----------------|-----------------|---|--------|
|                    | t              | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference |        |
|                    |                |    |                 |                 | Lower                                     | Upper  |
| Experimental Group | 40.212         | 99 | .000            | 1.75000         | 1.6636                                    | 1.8364 |
| Traditional Group  | 22.716         | 99 | .000            | 1.02000         | .9309                                     | 1.1091 |

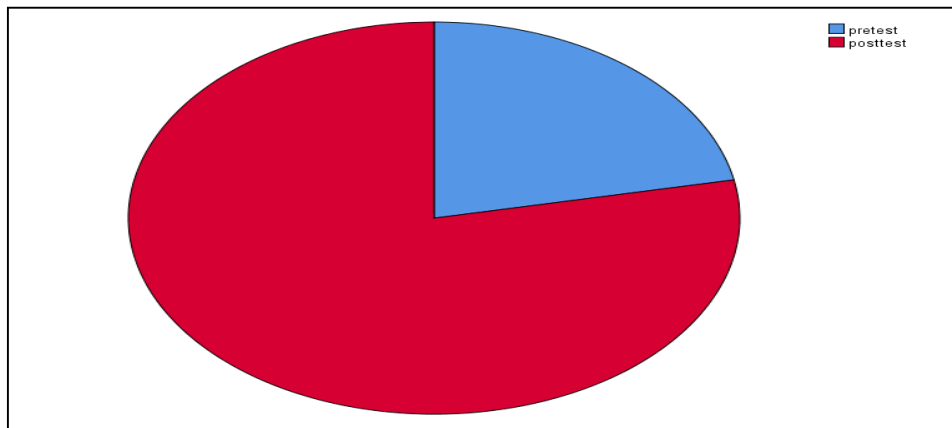
**Table: 1.4****T-test of Experimental Group and Traditional group****Figure 1.5 Result of pre and post achievement test**

Table 1.3 and table 1.4 compare the post –test of experimental group and traditional group:an experimental group who studied through blended learning and another group that is taught in traditional way.The post-test academic achievement score were (M1.75) for experimental group and (M1.02) for traditional group.An independent sample test was conducted to determine if there was a significant difference between the post test score of the two groups.

The results of the study indicate that the students studied in blended mode were more successful after the study than the students who studied in traditional way. The experimental group who studied through blended way had a higher post test academic achievement score than the traditional one. This suggests that blended learning was more effective than the traditional learning. The hypothesis “There will be no significant difference between the post test score of blended classroom based teaching and existing traditional classroom based teaching on achievement of B.Ed. Students” was rejected.

**7. Conclusion**

The study on the effectiveness of blended learning on the achievement of B.Ed. students in Delhi NCR provides valuable insights into the impact of this instructional approach. Based on the findings and analysis, the following conclusions can be drawn:

**Improved Academic Achievement:** The study indicates that blended learning has a positive effect on the academic achievement of B.Ed. students in Delhi NCR. The integration of online learning components with traditional face-to-face instruction enhances students' learning experiences and outcomes.



**Flexibility and Convenience:** Blended learning offers flexibility and convenience to B.Ed. students, allowing them to access course materials and resources at their own pace and convenience. This flexibility contributes to increased engagement, motivation, and ultimately, better academic achievement.

**Personalized Learning Experience:** Blended learning provides opportunities for personalized learning experiences. Through online platforms and resources, B.Ed. students can tailor their learning to their individual needs, preferences, and learning styles. This customization leads to improved understanding and retention of educational content.

**Enhanced Collaboration and Interaction:** Blended learning fosters collaboration and interaction among B.Ed. students. Online discussion forums, group projects, and virtual classrooms facilitate peer-to-peer learning and knowledge sharing, which positively impact achievement levels.

**Technology Integration Skills:** Blended learning equips B.Ed. students with essential technology integration skills. By engaging with online tools and resources, students develop digital literacy, critical thinking, problem-solving, and communication skills, which are increasingly crucial in today's educational and professional settings.

**Challenges and Recommendations:** While blended learning offers numerous benefits, the study also highlights challenges. Technical issues, lack of internet access, and resistance to change may hinder the effective implementation of blended learning. To address these challenges, it is recommended to provide necessary infrastructure, training, and ongoing support to both students and instructors.

In conclusion, the findings of this study emphasize the effectiveness of blended learning in enhancing the academic achievement of B.Ed. students in Delhi NCR. Blended learning offers a flexible, personalized, collaborative, and technology-integrated learning environment that positively impacts student outcomes. By acknowledging the challenges and implementing appropriate measures, educational institutions can harness the potential of blended learning to optimize the achievement of B.Ed. students.

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