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Effect of Blended Learning on Motivation for Learning among Elementary School Students: An Experimental Study

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Abstract:

Education in the twenty-first century is undergoing rapid transformation due to advancements in information and communication technology. Traditional methods of teaching are increasingly supplemented with digital tools and online resources to create more effective and engaging learning experiences. Among the various innovative instructional approaches, blended learning has emerged as one of the most widely adopted methods in schools and higher educational institutions. Motivation for learning is a crucial factor influencing students' academic success. It refers to the internal and external forces that stimulate students' interest, enthusiasm, and willingness to participate in learning activities and achieve educational goals. Students who are highly motivated tend to demonstrate greater attention, persistence, effort, and commitment to their studies. The present study investigated the effect of the Blended Learning Approach on motivation for learning among elementary school students. A pre-test–post-test control-group experimental design was employed to examine the effectiveness of blended learning compared with conventional face-to-face teaching. The study was conducted in a purposively selected private school in Sirsa district, Haryana, India. A total of 120 eighth-grade students participated in the study and were randomly assigned to an Experimental Group (n = 60) and a Control Group (n = 60). The purposive sampling technique was adopted to select participants with similar socio-economic backgrounds, academic curriculum, and school facilities. The Experimental Group received instruction through a Blended Learning Approach, while the Control Group was taught using the Traditional Teaching Approach. Motivation for Learning was measured using a self-developed Motivation for Learning Scale. The findings revealed that students exposed to blended learning demonstrated significantly higher motivation to learn than those taught through traditional methods. The study concludes that blended learning is an effective pedagogical strategy for enhancing learners' motivation at the elementary school stage.

Keywords: Blended Learning, Motivation for Learning, Experimental Study, Elementary Education, Social Science, Eighth-Grade Students.

Introduction

The integration of digital technology into education has brought significant changes in teaching and learning practices. Traditional classroom instruction, though effective in many respects, often limits opportunities for personalised learning, active participation, and learner autonomy. Contemporary educational approaches emphasise the importance of creating learner-centred environments that foster engagement, curiosity, and motivation. Among these approaches, blended learning has emerged as a promising pedagogical innovation. Blended learning is broadly defined as a multidimensional teaching strategy that integrates traditional, digital, and online instructional processes to optimally meet learners' specific needs (Durk et al., 2025; Angawi & Tasir, 2024). Blended learning is no longer merely a teaching procedure in which online and offline instruction is combined; rather, it is a pedagogical integration designed to create a flexible, productive, and student-centred learning environment. According to Mulenga and Shilongo (2024), blended learning is a pedagogically planned and adaptive instructional strategy that combines traditional, distance, digital, formal and informal learning modes to satisfy students' needs. From a socio-constructivist perspective, blended learning is understood as a shift from teacher-centred to learner-centred teaching (Meunier et al., 2026). Blended learning combines face-to-face classroom instruction with technology-mediated learning experiences. It seeks to capitalise on the strengths of both traditional and digital modes of instruction, providing students with flexible, interactive, and engaging learning opportunities. Researchers have argued that blended learning promotes active participation, self-regulated learning, collaboration, and learner autonomy, all of which contribute to enhanced motivation for learning.

Motivation is a critical determinant of educational success. It influences students' willingness to learn, persistence in academic tasks, and overall achievement. Highly motivated students are more likely to engage deeply with learning activities and demonstrate sustained academic effort. Therefore, investigating instructional approaches that enhance motivation is of considerable importance in contemporary education. A study by Sahni (2019) found that blended learning in the classroom promotes autonomous learning and enhances student motivation. The approach has several benefits, as it is innovative, promotes active learning, is personalised and student-centric, and is highly motivating for students. The study also demonstrated that a balanced approach to blended learning can increase student motivation.

Need and Significance of the Study:

The rapid digitalisation of education has necessitated the adoption of innovative teaching approaches that can meet the diverse learning needs of students. While blended learning has been widely implemented in higher education, empirical evidence regarding its effectiveness at the elementary school level remains limited, particularly in the Indian context. The present study was undertaken to examine whether blended learning could enhance motivation for learning among eighth-grade students studying Social Science. The study's findings are expected to provide valuable insights for teachers, curriculum developers, school administrators, and policymakers on the pedagogical effectiveness of blended learning in elementary education.

Objectives of the Study:

The study was conducted with the following objectives:

1. To compare the effect of Motivation for Learning before experimental treatment on the experimental and control groups.
2. To compare the effect of the blended learning approach and the traditional approach in social science on Motivation for learning after experimental treatment.

Hypothesis

Null Hypothesis (H_0):

$H_0$1. There will be no significant difference in motivation for learning before experimental treatment between the experimental and control group.

$H_0$2. There will be no significant difference between the blended learning approach and the traditional approach in social science on Motivation for learning after the experimental treatment.

Variables of the Study:

The validity of an experimental study depends on clearly identifying and defining the variables involved. To examine the relationship between the teaching methods and student outcomes, the variables in this study have been classified as independent and dependent. It also enables researchers to test the results using appropriate statistical techniques.

Independent Variable:

The independent variable is the factor introduced, controlled, and manipulated to establish its direct, measurable impact on cognitive and affective outcomes. In this study, the key independent variable is the instructional approach used to teach the Social Science curriculum to the eighth-grade students. To compare the effectiveness of different teaching methods, this variable was divided into two distinct instructional approaches:

- **Blended Learning Approach (Experimental condition):** It combines digital multimedia resources, interactive technology-based activities, and online learning support with traditional classroom teaching exclusively provided to the Experimental Group.
- **Traditional Teaching Approach (Control Condition):** It mainly relies on a lecture-based and textbook-based teaching and learning approach. Unlike the Blended learning approach, it doesn't use digital multimedia or technology-based learning tools.

Dependent Variable

- **Motivation for Learning:** This is an affective variable that measures students' interest, enthusiasm, persistence, and willingness to learn Social Science.

Methodology

Research Design:

The study employed a pretest –Post-test Control Group Experimental Design. This design enabled the researcher to determine the effect of instructional treatment on students' motivation for learning while controlling for extraneous variables.

Population and Sample:

The study was conducted in a private school located in the Sirsa district of Haryana. The population comprised students enrolled in Eighth Grade. A sample of 120 students was selected and randomly allocated by lottery to the Experimental Group (60 students) and the Control Group (60 students).

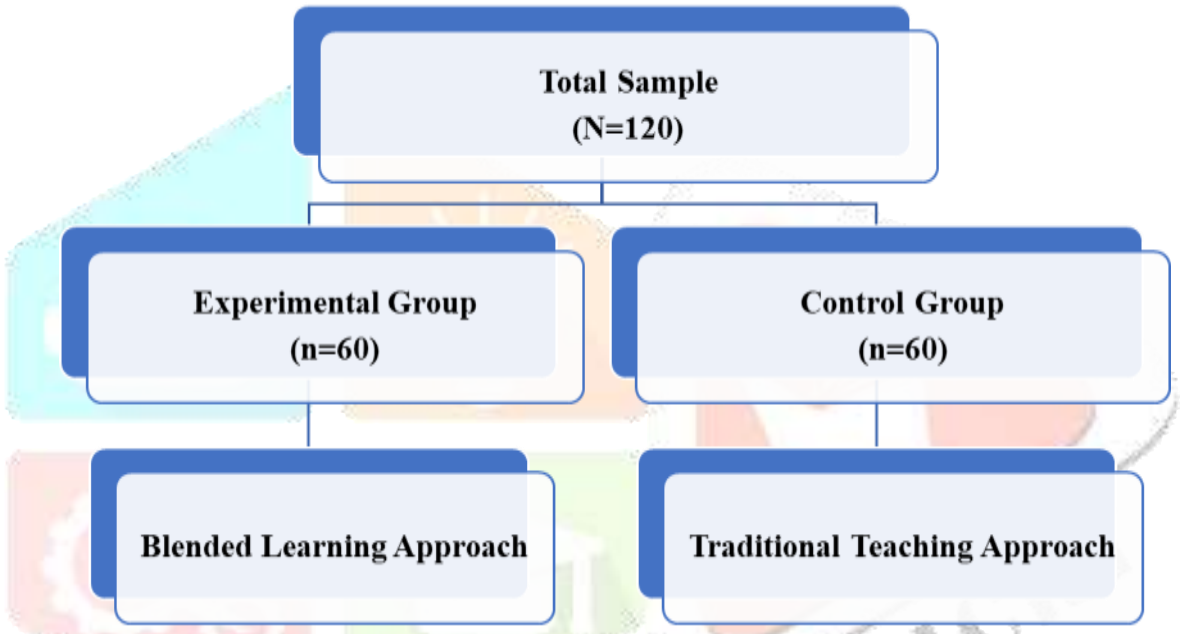

Figure 1: Paradigm of the Sampling Distribution.

Demographic profile of the sample:

All participants were selected from known private secondary schools in the district of Sirsa, Haryana. The participants were selected from eighth-grade students, with an average age of about 13-14 years.

Design and standardization of tools:

To measure the dependent variables effectively and implement the teaching intervention, appropriate research tools were carefully developed, standardised, and selected. In the present study, three major research tools were used to meet the pedagogic and empirical goals:

- Traditional Lesson Plans in Social Science (Self-developed)
- Blended Learning Lesson Plans in Social Science (Self-developed)
- Motivation for Learning Scale (Self-developed)

The self-developed tools were prepared by the researcher and validated through expert review and pilot testing procedures.

Instructional Treatment:

The instructional intervention was administered over a predetermined period.

Experimental Group:

Students in the Experimental Group were taught Social Science through a Blended Learning Approach. The instructional process integrated classroom teaching with digital learning resources, multimedia presentations, online activities, interactive assignments, and technology-supported learning experiences.

Control Group:

Students in the Control Group received instruction through the Conventional Face-to-Face Teaching Method. Teaching primarily involved classroom lectures, textbook-based instruction, teacher explanations, and traditional learning activities.

Both groups studied the same content and learning objectives during the intervention period.

Data Collection Procedure

The study was conducted in three phases:

Phase I (Pre-testing):

Prior to the intervention

- Raven's Standard Progressive Matrices was administered.
- A baseline criterion test was conducted.
- The Motivation for Learning Scale was administered as a pre-test.

Phase II (Instructional Treatment):

The Experimental Group received blended learning instruction, whereas the Control Group received conventional instruction.

Phase III (Post-testing):

Following the completion of the instructional treatment:

- The Motivation for Learning Scale was re-administered to both groups.

The resulting data were analysed to determine the effect of instructional treatment on students' motivation for learning.

Results and Discussion

Baseline equivalence: pre-test data analysis

Prior to assessing the efficacy of the Blended Learning Approach, it is critical to demonstrate statistically that the Experimental Group and the Control Group were equivalent in their baseline cognitive and affective abilities. By applying the Independent Samples t-test to the baseline data, the subsequent analysis identifies the initial state of the eighth-grade students, ensuring that any differences observed in the post-test period can be confidently attributed to the teaching approach rather than to sample differences.

Analysis of objective 1 (Hypothesis H01): Motivation for Learning.

During the first phase of the baseline assessment, the students' pre-existing motivation towards the Social Sciences curriculum is measured.

Objective 1: To compare the blended learning approach and the traditional teaching approach in social science regarding motivation for learning before the experimental treatment.

- Null Hypothesis (H01): There will be no significant difference between the effects of the blended learning approach and the traditional teaching approach in social science on Motivation for learning before the experimental treatment.

To test this hypothesis, the pre-test scores obtained from the standardised Motivation for Learning scale were analysed using descriptive and inferential statistical techniques. The results of the analysis are presented in Table 1.

Group	N	Mean	Std. Deviation (SD)	df	t-value	p-value	Level of Significance
Experimental (Blended)	60	126.48	14.82	118	0.323	0.747	Not Significant (p > 0.05)
Control (Traditional)	60	125.62	14.35				

Table 1: Independent Samples t-test for Pre-Test Motivation for Learning

Interpretation: The table above presents the data array, which is a mathematical mirror image of the two teaching groups. The Experimental Group recorded a pre-test mean score of 126. 48, with a standard deviation of 14. 82. Similarly, the Control Group reported a mean score of 12 5.62 and a standard deviation of 14. 35. As a result, the Independent Samples t-test yielded a t-value of 0. 323 with 118 degrees of freedom. The precise probability (p-value) was determined to be 0.747. The p-value is an exponential multiple of the alpha value of 0.05, so the result is declared statistically insignificant. The Null Hypothesis (H01) is thus unquestionably upheld.

The statistical results indicate that before the intervention, the 120 eighth-grade students had similar levels of motivation to learn Social Science. The insignificant difference between the means (126.48 vs 125.62) indicates no prior motivational advantage or disadvantage for the Experimental Group relative to the Control Group. This would be translated in a classroom setting where every student was intrinsically interested, academically persistent and extrinsically motivated. The first level of interest in geographical phenomena (e.g., resources, agriculture, industries and human resources) and the affective filter were in balance. This baseline equivalence ensures the experiment's internal validity and provides a controlled baseline for introducing the Blended Learning Approach.

Analysis of objective 2 (H02): Motivation for Learning. The primary measure of the intervention's impact on students' affective development is their post-test level of motivation towards the Social Science curriculum. Objective 2: To compare the effect of the blended learning approach and the traditional approach in social sciences on Motivation for learning after experimental treatment.

- Null Hypothesis (H02): There will be no significant difference between the effects of the blended learning approach and the traditional approach in social science on Motivation for learning after the experimental treatment.

To test this hypothesis and examine the effect of the pedagogical intervention, post-test scores from the standardised Motivation for Learning instrument were analysed using descriptive and inferential statistics. The results of the analysis are presented in Table 2.

Group	N	Mean	Std. Deviation (SD)	Df	t-value	p-value	Level of Significance
Experimental (Blended)	60	152.78	15.04	118	8.282	0.000	Significant at the 0.01 level ($p < 0.01$)
Control (Traditional)	60	130.18	14.85				

Table 2: Independent Samples t-test for Post-Test Motivation for Learning

The statistical analysis presented in Table 4.2 shows a significant difference between the two groups following the experimental intervention. The Experimental Group, which was taught using the Blended Learning Approach, achieved a higher post-test mean score of 152.78 with a standard deviation of 15.04. In comparison, the Control Group, which was taught using the Traditional Teaching Approach, obtained a lower mean score of 130.18 with a standard deviation of 14.85.

An Independent-Samples t-test was conducted to compare the post-test motivation scores between the two groups. The analysis yielded a t-value of 8.282 with 118 degrees of freedom and a p-value of 0.000. Since the p-value was less than the significance level of 0.01 ($p < 0.01$), the difference in mean scores between the two groups was highly significant. The mean difference of 22.60 points indicates that the Blended Learning

Approach had a significant positive effect on students' motivation for learning Social Science. Therefore, the null hypothesis (H02) was rejected.

The results indicate that the Blended Learning Approach positively affected students' motivation to learn Social Science. The rejection of the null hypothesis indicates that students who learned through blended learning demonstrated significantly higher motivation than those taught through the Traditional Teaching Approach. The use of digital learning resources, such as interactive videos, simulations, and online learning materials, appears to have enhanced both students' interest in learning and their willingness to participate in academic activities.

The significant mean difference of 22.60 points suggests that the Blended Learning Approach was more effective in enhancing students' motivation than the Traditional Teaching Approach. The use of technology-based learning resources, including multimedia and interactive materials, appears to have increased students' interest and engagement in learning Social Science. Students in the Experimental Group demonstrated greater enthusiasm for learning, showed a stronger willingness to complete challenging tasks, and exhibited a higher level of commitment to their academic work. In comparison, students taught using the Traditional Teaching Approach exhibited lower motivation. These findings indicate that the Blended Learning Approach was more effective at fostering students' motivation and interest in learning.

Analysis of post-test scores revealed that students exposed to the Blended Learning Approach demonstrated higher motivation to learn than those taught through conventional classroom instruction. The improvement may be attributed to several features of blended learning:

- Increased learner autonomy.
- Enhanced interaction with learning resources.
- Opportunities for self-paced learning.
- Greater use of multimedia and interactive content.
- Improved learner engagement and participation.
- Continuous feedback and monitoring of progress.

The findings support constructivist perspectives, which emphasise active learner involvement in knowledge construction. Blended learning provides opportunities for exploration, collaboration, and self-directed learning, thereby enhancing students' intrinsic motivation. The results are also consistent with previous research indicating that technology-supported learning environments positively influence learner motivation.

Educational Implications: The study's findings have several important implications:

- Blended learning can serve as an effective instructional strategy for enhancing motivation among elementary school students.
- Schools should integrate digital technologies into classroom teaching to create engaging learning environments.
- Teachers should be trained in the design and implementation of blended learning activities.

CONCLUSION

The statistical analysis conducted in this study provided clear answers to the research questions. Before the implementation of the teaching intervention, preliminary analyses indicated that the Experimental Group and the Control Group were similar in their motivation to learn. The acceptance of the first null hypothesis (H01) indicated that there were no significant differences between the two groups at the pre-test stage. This ensured that the groups were comparable and strengthened the validity of the experimental design. After the implementation of the teaching interventions, the post-test results showed significant differences between the two groups. The rejection of the null hypothesis H02 demonstrated that the Blended Learning Approach had a significant positive effect on students' motivation. Students who learned through the Blended Learning Approach performed better than those who were taught through the Traditional Teaching Approach. The use of digital and multimedia resources increased students' interest in learning and encouraged active participation. Overall, the study's findings confirm that the Blended Learning Approach is an effective instructional strategy for teaching Social Science at the secondary school level. The integration of digital technologies with traditional classroom teaching enhances students' motivation. Therefore, blended learning can be considered a reliable and effective approach for improving learning outcomes among secondary school students.

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