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Exploring Pre-Service Secondary Teachers' Perceptions on Blended Learning: An Experimental Study

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Abstract

This experimental study aims to investigate the perceptions of pre-service secondary teachers using a multidimensional Perception Scale comprising six distinct dimensions. Specifically, the research explores the effectiveness of blended learning compared to conventional methods. With a sample size of 80 participants evenly divided into the Blended Learning Group (BLG) and the Conventional Method Group (CMG), the study employs rigorous comparative analysis to discern nuanced differences in how male and female pre-service secondary teachers evaluate these instructional approaches. The findings hold potential implications for teacher training programs, curriculum development, and educational practices in secondary education, with the goal of optimizing learning outcomes.

Keywords: Blended Learning, Secondary Education, Conventional Methods, Perception

Introduction

Blended learning is an instructional approach that integrates conventional in person or physical classroom teaching with e-learning facilities. It combines elements of both traditional in-person instruction and digital learning, allowing for a more flexible and personalized educational experience. In a blended learning environment, students typically engage in a variety of activities, including in-person lectures, discussions, and group work, as well as online assignments, videos, simulations, and discussions. The online component can be delivered through a learning management system (LMS), where students access course materials, submit assignments, participate in discussions, and receive feedback from instructors. The key characteristic of blended learning is its flexibility, as it allows students to have some control over the time, place, path, or pace of their learning. This approach can cater to diverse learning styles and preferences, offering opportunities for both synchronous (real-time) and asynchronous (self-paced) learning activities. Blended learning has gained popularity in education due to its potential to enhance student engagement, facilitate personalized learning experiences, and provide access to a wider range of resources and learning opportunities. It also allows instructors to leverage technology to create more interactive and dynamic learning environments while still maintaining the benefits of face-to-face interaction and social learning.

Examining perceptions of the blended learning approach before and after the COVID-19 pandemic presents an intriguing area of study within educational research. Before the pandemic, blended learning was often viewed as an innovative teaching method, offering flexibility and personalized learning experiences. However, its adoption varied across educational institutions and was sometimes met with skepticism or resistance due to concerns about technology integration, pedagogical effectiveness, and logistical challenges. With the onset of the COVID-19 pandemic, educational systems worldwide were forced to rapidly transition to remote and online learning to ensure continuity of education while adhering to social distancing measures. This abrupt shift led to a

widespread implementation of blended learning models, with many educators incorporating a mix of synchronous and asynchronous online activities alongside traditional face-to-face instruction. The impact of this transition on perceptions of blended learning is multifaceted. On one hand, the pandemic highlighted the importance of digital literacy and the need for educators to adapt to new technologies and teaching modalities. It also underscored the potential benefits of blended learning, such as increased flexibility, accessibility, and the ability to cater to diverse learning needs. On the other hand, the rapid and often unplanned nature of the transition may have led to challenges and frustrations for both educators and students, potentially influencing perceptions of blended learning negatively. Issues such as technological barriers, inequities in access to resources, and concerns about maintaining student engagement and academic integrity in online environments may have arisen during this period.

Post-pandemic, perceptions of blended learning are likely to be influenced by the experiences and lessons learned during the pandemic era. Educators may have gained new insights into effective strategies for blended learning, as well as a deeper understanding of its potential benefits and limitations. Additionally, increased comfort and familiarity with online tools and platforms may contribute to a more positive outlook on blended learning among educators and students alike. Studying perceptions of blended learning before and after the COVID-19 pandemic can provide valuable insights into how educational practices have evolved in response to global challenges and how blended learning may continue to shape the future of teaching and learning.

Significance of the Study

Understanding the perceptions of pre-service secondary teachers on blended learning approaches holds substantial significance for educational practice and research. Firstly, it informs the development of teacher training programs by identifying attitudes, beliefs, and concerns that may impact future educators' readiness to integrate technology and innovative pedagogical approaches into their teaching. Additionally, insights gained from studying pre-service teachers' perceptions can guide curriculum development efforts, ensuring that teacher preparation courses adequately prepare educators to effectively utilize blended learning strategies in diverse classroom settings. Furthermore, by addressing pre-service teachers' perceptions, policymakers and educators can identify barriers to successful implementation and develop strategies to optimize learning outcomes for students. This research also contributes to the broader field of educational research by advancing our understanding of technology integration and instructional innovation, ultimately promoting evidence-based recommendations for practice and policy.

Objectives of the study

To assess the perception of Blended Learning Group and Conventional Method Group towards Blended Learning Approach.

Hypothesis of the study

There is no significant difference in the acceptability of the Blended Learning Group (BLG) and Conventional Method Group (CMG) towards the Blended Learning Approach.

Method

To accomplish the objectives of the present study the Quasi Experimental (Pre-test and Post-test non-equivalent group design) was used.

Population and Sampling

In the present study, a sample of 80 (Eighty) B.Ed. Second Year Students were selected from Biswanath College of Education, Assam and the sample was divided into two different groups viz. Experimental Group (Blended Learning Group) and Control Group (Conventional Method Group). Each group consisted of 40 (Forty) samples. These Groups were formed by adjusting mean scores based on an Intelligent Test. They were designated as Blended Learning Group (BLG) and Conventional Method Group (CMG). However, it was decided that the Pre-Service Secondary Teacher would be absent for a week continuously he/she would be eliminated from the sample. The researcher has decided to adopt a purposive sampling technique for the selection of a sample of 80 (Eighty) Pre-Service Secondary Teachers based on the Intelligent test conducted on them. The groups were divided into two different groups by taking the mean adjusted scores and adoption of assumptions test to avoid the extraneous variables for the experiment.

Tool used for data collection

The study aimed to evaluate the perceptions of Pre-Service Secondary Teachers regarding the Blended Learning Approach using a perception tool originally developed by Maria Josephine Arokia Marie and Dr. Sreekala E. This tool, which was adapted for the study, sought to capture participants' views on blended learning Programme across

six dimensions: General, Interactivity, Knowledge Creation, Course Content, Technology Benefit, and Overall Satisfaction. The scale included 50 Likert scale items, with content validity ensured by experts from Pondicherry University and Teacher Education Institutions. After removing seven items, the final 43 items were tested for reliability with 100 student teachers, and the average time to complete the scale was 30 minutes.

Result and Discussion

Objective-1: To assess the acceptability of Blended Learning Group and Conventional Method Group towards Blended Learning Approach.

Hypothesis-1(H_{01}): There is no significant difference on the acceptability of Blended Learning Group (BLG) and Conventional Method Group (CMG) towards Blended Learning Approach

General: The study revealed a significant difference in general perception scores between the Blended Learning

Table :-1 Description of the perception scores of Blended Learning Group and Conventional Method Group

Group	Dimension	N	Mean	SD	Mean Difference	SED	df	t	Remarks
BLG	General	40	27.8	2.27	6.65	0.81	78	8.17	Significant (at Both 0.01 and 0.05 level)
CMG		40	21.15	4.62					
BLG	Per1	40	31.2	2.83	3.33	0.79	78	4.20	Significant (at Both 0.01 and 0.05 level)
CMG		40	27.88	4.12					
BLG	Per2	40	31.68	2.65	6.35	0.27	78	8.73	Significant (at Both 0.01 and 0.05 level)
CMG		40	25.32	3.76					
BLG	Per3	40	32.1	2.78	5.55	0.80	78	6.91	Significant (at Both 0.01 and 0.05 level)
CMG		40	26.55	4.25					
BLG	Per4	40	34.32	2.42	3.58	0.84	78	4.27	Significant (at Both 0.01 and 0.05 level)
CMG		40	30.75	4.70					
BLG	Per5	40	35.12	2.33	7.62	0.82	78	9.28	Significant (at Both 0.01 and 0.05 level)
CMG		40	27.5	4.64					

Group (BLG) and the Conventional Method Group (CMG). The BLG had a higher mean score (M=27.8) compared to the CMG (M=21.15), indicating greater acceptance of the Blended Learning Approach by the BLG.

The calculated t-value is 8.17, which is significantly higher than the critical values of 1.99 and 2.64 at the 0.05 and 0.01 confidence levels, respectively. Therefore, the stated Hypothesis (H0) is rejected.

Interactivity (PER1): For the Interactivity dimension, the BLG again showed significantly higher perception scores (M=31.2) than the CMG (M=27.87). The t-value is 4.20, exceeding the critical values of 1.99 and 2.64 at the 0.05 and 0.01 significance levels. As a result, the stated Hypothesis (H0) is rejected. The analysis confirmed that BLG participants found the Blended Learning Approach more acceptable in terms of interactivity.

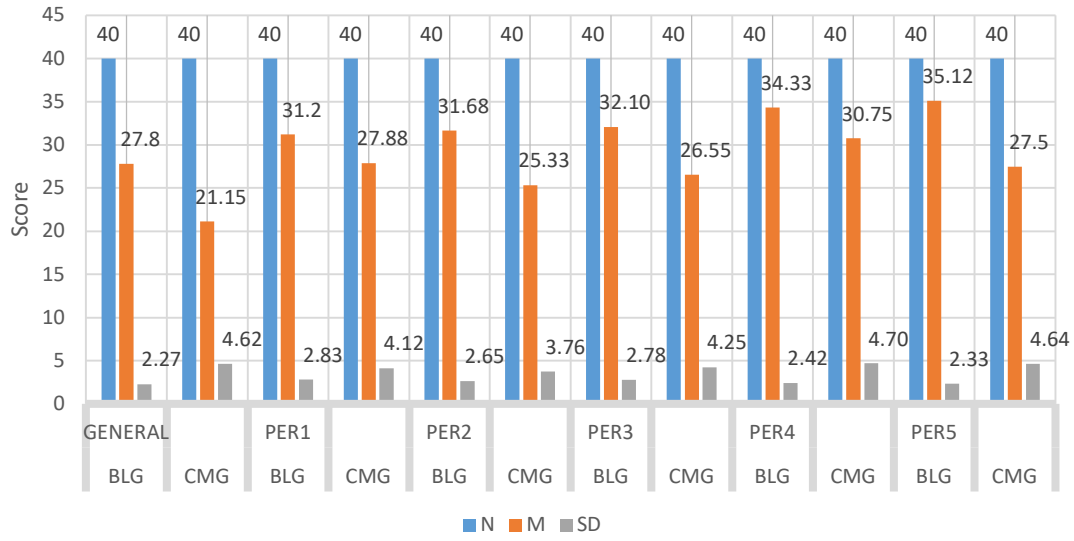
Knowledge Creation (PER2): In the Knowledge Creation dimension, the BLG scored significantly higher (M=31.67) than the CMG (M=25.32), demonstrating that BLG participants had a more favorable perception of the Blended Learning Approach in facilitating knowledge creation. The t-value is 8.73, which is significantly greater than the critical values of 1.99 and 2.64 at the 0.05 and 0.01 confidence levels. Thus, the stated Hypothesis (H0) is rejected.

Course Content (PER3): The BLG also outperformed the CMG in the Course Content dimension, with a mean score of 32.1 compared to 26.55 for the CMG. The t-value is 6.91, surpassing the critical values of 1.99 and 2.64 at the 0.05 and 0.01 confidence levels. Therefore, the stated Hypothesis (H0) is rejected. This suggests that BLG participants found the course content more acceptable within the Blended Learning Approach.

Technology Benefits (PER4): Regarding Technology Benefits, the BLG had a higher mean score (M=34.32) compared to the CMG (M=30.75), indicating that the BLG viewed the technological aspects of the Blended Learning Approach more favorably. The t-value exceeds the critical values of 1.99 and 2.64 at the 0.05 and 0.01 confidence levels. Consequently, the stated Hypothesis (H0) is rejected.

Overall Satisfaction (PER5): Finally, in the Overall Satisfaction dimension, the BLG significantly outscored the CMG, with a mean of 35.12 compared to 27.5. This result reflects greater overall satisfaction with the Blended Learning Approach among BLG participants. The t-value is 9.28, which is significantly higher than the critical values of 1.99 and 2.64 at the 0.05 and 0.01 confidence levels. As a result, the stated Hypothesis (H0) is rejected.

Graph-1 Description of the perception scores of Blended Learning Group and Conventional Method Group



Source: Primary Data

Findings of the study

The study found that pre-service secondary teachers in the Blended Learning Group exhibited higher acceptance of the Blended Learning method compared to those in the Conventional Method Group, suggesting a greater satisfaction with this approach. This indicates positive perceptions and experiences with Blended Learning among the study participants, highlighting its potential effectiveness and appeal. Further investigation into factors contributing to this acceptance, such as engagement and perceived learning outcomes, could inform efforts to enhance instructional methods and overall teacher satisfaction. Additionally, the study revealed significant differences in general perception scores between the two groups, indicating distinct attitudes towards the instructional methods employed. Specifically, differences were observed in perceptions of interactivity, knowledge creation, course content, technology benefits, and overall satisfaction. Exploring these variations could provide valuable insights for educators and institutions aiming to tailor instructional approaches to better meet the needs of pre-service secondary teachers. Further investigation into specific factors influencing perceptions, such as engagement and technology integration, could inform efforts to optimize instructional methods and enhance overall satisfaction among pre-service teachers

Conclusion

The exploration of pre-service secondary teachers' perceptions of blended learning through experimental research provides valuable insights into its efficacy, acceptance, and implications for educational practice. The study reveals a notable trend wherein the Blended Learning Group demonstrates higher acceptance and satisfaction with the blended learning approach compared to the Conventional Method Group. This finding underscores the positive experiences and preferences for blended learning among pre-service teachers, highlighting its potential effectiveness and appeal in contemporary educational contexts. Moreover, significant differences in perception scores between the two groups across various dimensions, including interactivity, knowledge creation, course content, technology benefits, and overall satisfaction, emphasize the need for further investigation into factors influencing these perceptions. By delving deeper into these aspects, educators and institutions can gain valuable insights to tailor instructional approaches, optimize learning outcomes, and enhance overall teacher satisfaction. Thus, understanding pre-service teachers' attitudes towards blended learning is crucial for effectively integrating technology and innovative pedagogical strategies into teacher training programs, thereby preparing future educators to meet the evolving needs of modern classrooms

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