

EFFECTIVENESS OF BLENDED LEARNING ON ACHIEVEMENT IN EDUCATIONAL TECHNOLOGY OF PRE-SERVICE TEACHERS

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Abstract:

The study was aimed at evaluating the Effect of Blended Learning on Achievement in Educational Technology of Pre-Service Teachers. Posttest-only control group design was used. A self-made Educational Technology Achievement Test (ETAT) was used to collect the data from the sample consisting of 80 B.Ed. trainees. The two treatment groups had strength of 40 Pre-Service Teachers in each; both the groups were matched on per-achievement scores (t value is not significant). The objectives and related hypotheses were analyzed by applying 't' test. The findings of the study indicated that: i) Blended Learning is more effective than the conventional strategy in improving the Achievement in Educational Technology of Pre-Service Teachers. ii) The Male and Female Pre-service teachers taught through Blended learning Instructional Strategy do not differ in their Achievement in Educational Technology.

Keywords: Blended Learning, Achievement, Pre-service teachers.

Introduction

Integrating technology in education makes teaching and learning more effective and meaningful. Blended Learning integrates a virtual and face-to-face learning situation for students. It combines online educational materials and opportunities of interaction with traditional classroom methods. It needs the physical presence of both teacher and student, with some conditions of student control over time, place, path, or pace.

Blended learning is a formal education program and also known as hybrid learning. It enables students to learn through various styles. It is used in professional development and training settings. It can save a lot of time and also result in high levels of student achievement more effective than traditional learning. In the present study Blended learning is used to enhance the Achievement of pre-service teachers.

Literature Review

Blended learning has been extensively used in different disciplines.

Şentürk, C. (2020) Conducted a study on "Effects of the blended learning model on pre-service teachers' academic achievements and twenty-first century skills." The implementation was carried out over a period of 10 weeks with pre-service teachers at Karamanoğlu Mehmetbey University in the 2019–2020 academic year. In the study, a semi-experimental research design was employed. Data was collected by an academic achievement test and "multidimensional twenty-first century skills scale." The findings revealed that, there was a significant difference across the two groups, academic achievement and twenty-first century skills. And analysis of the retention test administered after four weeks showed a significant difference in favour of the experimental group.

Hayward, D. V., Mousavi, A. & Carbonaro, M. (2020) conducted a study on "Exploring Pre-service Teachers Engagement With Live Models of Universal Design for Learning and Blended Learning Course Delivery." This study was motivated by the need to provide pre-service teachers achievement with live modelling of Universal Design for Learning and Blended Learning concepts. Data analysis revealed regular access to the digital content across differing locations, week days, and time of day. Associations were significant between academic performance and all features.

Çiftçi, B. (2020) conducted a study on "The Effect of Blended Learning on Academic Achievement and Attitudes at Social Studies Courses." The purpose of this study was to study the achievement and persistence of blended learning strategy at social studies. the empirical method was used at research, the impact of blended learning method was examined on experimental group. The face to face learning method was used at control group. The experimental application of the research has been applied to 52 students at 7th grade. experimental group and control group containing 26 students in each. The findings revealed that, the persistence of student achievement, blended learning method is more effective than face to face learning method.

Deivam, M. & Devaki, N. (2015) conducted a study on "Effectiveness of Blended learning approach in teaching of Educational Psychology among B.Ed. trainees." The main aim of this study was to find out the effectiveness of blended learning instruction among student trainees' achievement in Educational Psychology. This study was conducted during the academic year of 2013-2014. Participants were hundred B.Ed trainees' selected from Usha Latchumanan College of Education, Thirukkanur, Puducherry. The Quasi experimental design was employed for this study. The equal randomization group of control and experimental group was organized containing 50 trainees in each. The study disclosed that, the blended learning is more effective than the conventional method of teaching.

Le, P. T., & Pham, H. T. (2021) conducted a study on “Using Blended Learning in Teacher Training Programs: Perspectives of Pre-service Teachers.” This paper employed a quantitative research design and surveyed 624 pre-service teachers in different universities with teacher training programs in Vietnam. In conclusion, blended learning was more effective than that of face-to-face learning and Vietnamese pre-service teachers preferred the use of blended learning in their training programs.

From the synthesis of the reviewed studies it is observed that, Blended learning is undoubtedly an effective practice for Achievement. But very little effort has been done to use Blended learning in teaching Educational Technology.

Objectives

1. To study the Effect of Blended Learning Instructional Strategy over Conventional Strategy in Enhancing Achievement in Educational Technology of Pre-Service Teachers.
2. To study the Effect of Blended Learning Instructional Strategy on Male and Female Pre-service teachers Achievement in Educational Technology.

Hypothesis

H0₁: There is no significant difference between the Blended learning Instructional Strategy and Conventional Strategy in improving Achievement in Educational Technology of Pre-Service Teachers.

H0₂: There is no significant difference between the Male Pre-service teachers and Female Pre-service teachers Achievement in Educational Technology taught through Blended learning Instructional Strategy.

Research design

Post test-only control group design was used. It is diagrammatically represented below.

Table 1: Schematic Representation of Treatments

Group	Treatment	Post test
Experimental Group	Blended learning Instructional Strategy. (X_1)	O_1
Control Group	Conventional Instructional Strategy. (X_2)	O_2

Sample

The sample consisted of 80 Pre-service Teachers of K B College of Education, Kumta (U.K). Based on their pre-achievement scores, matched pairs were identified and distributed into two treatment groups with 40 cases in each group.

Tools used

The data for the present study was collected by using the A self-made Educational Technology Achievement Test (ETAT) developed by the investigator. It consisted of 40 items selected through item analysis. The content validity was established by expert rating.

Procedure of the study

Treatments conducted for both the groups by a single teacher having competence in both the strategies. The two groups were post-tested on achievement in Educational Technology.

The experimental treatment involved in the teaching of Educational Technology. Each lesson was of one-hour duration. The total fifteen lessons were taught by using Blended Learning Instructional Strategy to the experimental group. Meanwhile, the students of Control group were taught the same lessons by using Conventional Strategy. Immediately after the completion of the treatment both the groups were Post- tested on achievement in Educational Technology.

Delimitation

- ✓ Blended learning Instructional Strategy can be applied to any subject, at any level. In the present study, the background of the Researcher has enabled its application to Educational Technology at B.Ed. level.
- ✓ Blended learning Instructional Strategy can be applied for different types of instruction. In the present study, it was applied to Group teaching as it is suitable to the Indian context.
- ✓ Blended learning Instructional Strategy can be applied for different types of instruction. In the present study, it was applied to Group instruction as it is suitable to the Indian context.
- ✓ The Independent variables considered in the study were Blended learning Instructional Strategy and Conventional Strategy
- ✓ The dependent variable assessed in the study is Achievement.

Results

H0₁: There is no significant difference between the Blended learning Instructional Strategy and Conventional Strategy in improving Achievement in Educational Technology of Pre-Service Teachers.

To test this hypotheses t-test was applied and the results are presented in the following table.

Table-2: Shows the post test scores of Pre -Service Teachers Achievement in the Educational Technology.

Treatments	N	Mean	S. D	t- value	Result
Blended learning Instructional Strategy	40	17.5	9.33	4.84	significant at 0.05
Conventional Strategy	40	9.28	5.28		

The calculated t-value 4.84 is greater than the table value 1.95 at 0.05 Significant level. The result is significant. hence, the null hypothesis (H_0) is rejected. Thus, the alternative hypothesis H_1 is accepted.

H₁: There is a significant difference between the Blended learning Instructional Strategy and Conventional Strategy in improving Achievement in Educational Technology of Pre-Service Teachers.

From the above Table-2, it is revealed that: There is strong evidence at the 0.05 level that the Instructional Strategies differed in how effective they were. The t- value indicates a statistically significant difference, but it did not indicate which method led to better test scores. Observing the overall means, the Experimental group has a grand mean score difference of $(22.65-16.85=4.60)$ 4.60 units higher in comparison with the Control group. This indicates that the treatment given to the Experimental group led to better test scores in Educational Technology. Thus, the experimental treatment proved to be significantly more effective. So it can be concluded that, Blended learning Instructional Strategy is more effective when compared to that of Conventional Strategy in enhancing Achievement in Educational Technology of Pre-Service Teachers.

H₀2: There is no significant difference between the Male Pre-service teachers and Female Pre-service teachers Achievement in Educational Technology taught through Blended learning Instructional Strategy.

To test this hypotheses t-test was applied and the results are presented in the following table.

Table-3: Shows the post-test scores of Female and Male Pre-Service Teachers Achievement in Educational Technology.

Pre-service teachers	N	M	SD	t-value	Result
Female	23	17.65	4.28	0.22	Not Significant at 0.05
Male	17	17.24	4.54		

The calculated t-value 0.22 is less than the the table value 1.95 at 0.05 Significant level. The result is Not significant. Hence, the null hypothesis (H_0) is accepted.

Thus, it can be concluded that, there is no significant difference between the male and female pre-service teachers Achievement in Educational Technology improved through Blended learning Instructional Strategy.

Major findings

1. Blended learning Instructional Strategy is more effective when compared to that of Conventional Strategy in enhancing Achievement in Educational Technology of Pre-Service Teachers.
2. The Male and Female Preservice teachers taught through Blended learning Instructional Strategy do not differ in their Achievement in Educational Technology.

Implications of the study

Blended Learning Instructional Strategy has been found to be an effective strategy to improve classroom instruction across various disciplines and hence its inclusion in the Teacher Education Curriculum will be a major effort in making its application possible at the initial level.

- Blended Learning Instructional Strategy has been found to be an effective strategy to improve classroom instruction across various disciplines and hence its inclusion in the Teacher Education Curriculum will be a major effort in making its application possible at the initial level.
- To implement Blended Learning Instructional Strategy in student education it has to start from Teacher Education. hence, it is suggested that Blended Learning Instructional Strategy be a part of Teacher Education Curriculum.
- Blended Learning Instructional Strategy facilitates meaningful learning that not only permit utilization of the knowledge in new contexts. By introducing this effective strategy in the school curriculum and Teacher education Curriculum the quality of Education can be improved.
- To develop Skill of effective teaching through Blended Learning Instructional Strategy, Technology Lab should be set up in every Teacher Education Institutions and resources in the form of self-learning materials should be maintained.

Conclusion

Blended learning is the training of combining digital media with traditional classroom. This is an innovative Instructional Strategy which helpful for students, teachers, Pre-service Teachers and teacher educators. This method allows Pre-service Teachers to understand deeply about the concept by helping them to what they learn, and to store and retrieve information more efficiently.

Blended learning Instructional Strategy also valuable tool for teacher educators to teach and train effectively. Present study has proved that Blended learning Instructional Strategy is more effective when compared to that of Conventional Strategy in improving Achievement of Pre-service Teachers in Educational Technology. This study has implications for student centric learning. It has been found to be an effective strategy to improve classroom instruction in various disciplines and hence its inclusion in the teacher education curriculum will be a major step in making its application possible. The teachers of all levels need adequate training to use Blended learning Instructional Strategy to improve Achievement in their students. Attempt in this direction will definitely contribute improvement in student performance.

References

1. Akkoyunlu, B., & Soyulu, M. Y. (2008). A study of student's perceptions in a blended learning environment based on different learning styles. *Educational Technology & Society*, 11(1), 183–193. [220374869_A_Study_of_Student's_Perceptions_in_a_Blended_Learning_Environment_Based_on_Different_Learning_Styles](https://doi.org/10.220374869_A_Study_of_Student's_Perceptions_in_a_Blended_Learning_Environment_Based_on_Different_Learning_Styles)
2. Balcı, M., & Soran, H. (2009). Students' opinions on blended learning. *Turkish Online Journal of Distance Education-TOJDE*, 10(1), 21–35. https://www.researchgate.net/publication/26571613_Students'_opinions_on_blended_learning
3. Biçen, H., Özdamlı, F., & Uzunboylu, H. (2012). Online and blended learning approach on instructional media development courses in teacher education. *Interactive Learning Environments*, 22(4), 529–548. [254220471_Online_and_blended_learning_approach_on_instructional_multimedia_development_courses_in_teacher_education](https://doi.org/10.254220471_Online_and_blended_learning_approach_on_instructional_multimedia_development_courses_in_teacher_education)
4. Boyle, T., Bradley, C., Chalk, P., Jones, R., & Pickard, P. (2003). Using blended learning to improve student success rates in learning to program. *Journal of Educational Media*, 28, 165–178. https://www.researchgate.net/publication/228775772_Using_Blended_Learning_to_Improve_Student_Success_Rates_in_Learning_to_Program
5. Caner, M. (2010). A blended learning model for teaching practice course. *Turkish Online Journal of Distance Education-TOJDE*, 11(3), 78–97. [45268070_A_blended_learning_model_for_teaching_practice_course](https://doi.org/10.45268070_A_blended_learning_model_for_teaching_practice_course)
6. Ceylan, V. K., & Kesici, A.E. (2017). Effect of blended learning to academic achievement. *Journal of Human Sciences*, 14(1), 308. https://www.researchgate.net/publication/313683225_Effect_of_blended_learning_to_academic_achievement
7. Çiftçi, B., (2020). The Effect of Blended Learning on Academic Achievement and Attitudes at Social Studies Courses. *Open Journal for Educational Research*, 4(2), 143-150. Retrieve from, <https://files.eric.ed.gov/fulltext/EJ1285096.pdf>
8. Cihad Şentürk, C. (2020). Effects of the blended learning model on preservice teachers' academic achievements and twenty-first century skills. *Education and Information Technologies*, 26, 35–48. <https://link.springer.com/article/10.1007/s10639-020-10340-y>
9. Deivam, M., & Devaki, N. (2015) Effectiveness of Blended learning approach in teaching of Educational Psychology among B.Ed. trainees. *International Journal of Development Research*, 5(9), 5558-5561. https://www.journalijdr.com/sites/default/files/issue-pdf/3882_0.pdf
10. Delialioğlu, O. (2012). Student engagement in blended learning environments with lecture-based and problem-based instructional approaches. *Educational Technology & Society*, 15(3), 310–322. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.298.8303&rep=rep1&type=pdf>
11. Demirer, V., & Şahin, I. (2009). Effect of blended learning environment on transfer of learning: An experimental study. *Journal of Computer Assisted Learning*, 29(6), 518–529. <https://onlinelibrary.wiley.com/doi/abs/10.1111/jcal.12009>
12. Hayward, D. V., Mousavi, A., & Carbonaro, M. (2020) Exploring Preservice Teachers Engagement With Live Models of Universal Design for Learning and Blended Learning Course Delivery. *Journal of Special Education Technology*. 37(1). <https://journals.sagepub.com/doi/abs/10.1177/0162643420973216>.
13. Le, P. T., & Pham, H. T. (2021). Using Blended Learning in Teacher Training Programs: Perspectives of Pre-service Teachers. *Journal of Educational and Social Research* 11(2):115-127. https://www.researchgate.net/publication/349854258_Using_Blended_Learning_in_Teacher_Training_Programs_Perspectives_of_Pre-service_Teachers.
14. Şentürk, C. (2021). Effects of the blended learning model on preservice teachers' academic achievements and twenty-first century skills. *Education and Information Technologies volume* 26, 35–48. <https://link.springer.com/article/10.1007/s10639-020-10340-y>