ORIGINAL RESEARCH PAPER

Education

# EFFECT OF BLENDED PEDAGOGICAL MODEL TO ENHANCE MATHEMATICAL SKILLS OF PRE-SERVICE TEACHERS

**KEY WORDS:** Blended, Pedagogical Model, Mathematical Skills, Pre-service Teachers

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**ABSTRACT**

NCERT emphasizes learning as a self-learning participatory process taking place in social context of learner's as well as wider social context of the community to nation as a whole. It puts full faith in self learning capacity of school children and student teacher and evolving proper educative program for education. It views the learner as an active participative person in learning. Blend requires replacing one of our traditional approaches with online/offline activities and teaching. An attempt was made to implement Blended pedagogical model in enhancing mathematical skill of D.El.Ed, Pre-service teachers. The study was carried out among 65 Pre-service teachers (D.El.Ed.) of District Institute of Education and Training, Palayampatti, Virudhunagar District, Tamil Nadu. The creative blended pedagogical model hosted for 45 days. Skill test, Pre test, Post test1, and Post test 2 conducted. It is observed that there are significant differences under Pre- Test, Post Test – 1, Post Test - 2 among control and experimental group. The major findings of the study reveal that Blended pedagogical model is effective in enhancing mathematical skills of Pre-service teachers. This study is beneficial to prospective teachers and teacher educators since it provide evidence of the best practice of technology mediated mathematics teaching learning process.

## INTRODUCTION:

Educational systems worldwide insist on using information and communication technologies (ICT) to teach students who gain the knowledge and skills needed for the future knowledge society. The Blended learning model would develop in pre-service teachers a positive attitude towards e-learning and using computers in their future classrooms. Blended learning model is the instructional system of processes and activities designed according to the ICT development, characteristics and models of e-learning, principles of formal communication, principles of e-education, principles of competence-based education system, etc. Blended learning model teaching adopts the constructivist principles in the designing of learning experiences. The concept of co-operative teaching is the fundamental construct to develop Blended learning model in teaching scenarios.

**NEED FOR THE STUDY:** Teachers prefer to adopt traditional methods of teaching in spite of the advent of advance technologies. Further, it is more disheartening to know that majority of the aspirants choose the career to be a primary school teacher in India, because it is a last resort. The concept of blended learning, which unites multiple teaching models, has recently received much attention. Blended learning represents all teaching models that are integrated with technology, such as e-mails, streaming media, Internet and can be combined with traditional teaching methods. Hence the problem of the present study is stated as "Effect of blended pedagogical model to enhance mathematical skills of Pre-service teachers."

**SIGNIFICANCE OF THE STUDY:** Pre-service Teachers and students commonly express a fear of or anxiety about mathematics. A sense of fear and failure regarding mathematics among a majority of Pre-service teacher is prevailing because of their shaky foundation. Learning mathematics is a challenge for them. Mathematics education trains Pre-service teachers to make and use measurements and includes the study of algebra, statistics, geometry and calculus. When mathematics content being taught by teacher educator is unconnected to pre-service teachers' ability level and experience, then there is serious achievement gaps result. Without intervention strategies, Pre-service teachers could remain lost for the duration of their education. Hence there is need to analyze various issues and problems relating to Pre-service teachers and learning of mathematics. With the recent advancement in technologies, the teaching of mathematics will be redesigned to bring it in line with modern technological devices. A strategy has to be developed to integrate the effectiveness and socialization opportunities of the class room with the technologically enhanced active learning possibilities. So the investigator selected this topic entitled "Effect of Blended Pedagogical Model to enhance Mathematical skills of Pre-Service Teachers".

## Review of Related Literature:

1. Vinh-Thang Ho et al. (2016) reported that the experimental, blended learning group showed a significantly higher level of knowledge of hands-on approach & overall satisfaction with the course.
2. Inderbir Kaur, (2016) revealed that an interactive combination of video teaching and an energetic peer facilitator beyond the traditional boundaries of classroom instruction with new advances in learning and collaboration technologies to maximize results.
3. Johnson N and Kasi D (2014) investigated on Design Approaches of Blended Learning in Higher Education.
4. Johnson N and Kasi D (2015) explored on Octagonal framework for implementing Blended Learning Pedagogical Model.
5. Johnson N and Kasi D (2016) investigated on "Involvement of Peer Group in Reflective Pedagogy".

## OBJECTIVES OF THE STUDY:

The following are the objectives of the study:

1. To assess the mathematical skills of the Pre-Service teachers.
2. To find out significant difference if any on mathematical skills of Pre- service teachers in respect to certain demographic variables.
3. To develop and validate module for Pre-service teachers to enhance the mathematical skills.
4. To find out the effect of developed module towards mathematical skills among Pre-Service teachers before and after experimentation.

**Hypothesis:** The following hypotheses were formulated based on the objectives of the study

1) There is no significance difference between the means of control and experimental group pre-service teachers in their skill test achievement in mathematics.
2) There is no significance difference between the means of control and experimental group pre-service teachers in their pre-test achievement in mathematics.
3) There is no significance difference between the means of control and experimental group pre-service teachers in their post- test 1achievement in mathematics.
4) There is no significance difference between the means of control and experimental group pre-service teachers in their post- test 2 achievement in mathematics.
5) There is no significance difference between the means of Skill test and Pre-test achievement in mathematics among control group pre-service teachers.
6) There is no significance difference between the means of Pre-test and Post- test 1 achievement in mathematics among control group pre-service teachers.

7) There is no significance difference between the means of Post-test 1 and Post-test 2 achievements in mathematics among control group pre-service teachers.
8) There is no significance difference between the means of Skill test and Pre-test achievement in mathematics among experimental group pre-service teachers.
9) There is no significance difference between the means of Pre-test and Post-test 1 achievement in mathematics among experimental group pre-service teachers.
10) There is no significance difference between the means of Post-test 1 and Post-test 2 achievements in mathematics among experimental group pre-service teachers.

**Sample:** 65 Pre-Service Teachers of District Institute of Education and Training, Palayampatti, Virudhunagar District, Tamil Nadu were taken as sample for the study. Experimental method was adopted. For data analysis, descriptive and differential analysis was used.

**Tool:** The following tools was developed and standardized by the Investigator

1. Specially designed High Impact Blend Learning Pedagogical Model for improving mathematical skills among Pre-Service Teachers of Elementary Education
2. Tool developed by the researcher to assess the mathematical skills among Pre-Service Teachers of Elementary Education.

**Major Findings of the Study:**

The following are the major findings of the study

1) There is no significance difference between the means of control and experimental group pre-service teachers in their skill test achievement in mathematics.
2) There is significance difference between the means of control and experimental group pre-service teachers in their pre-test achievement in mathematics.
3) There is significance difference between the means of control and experimental group pre-service teachers in their post- test 1achievement in mathematics.
4) There is significance difference between the means of control and experimental group pre-service teachers in their post- test 2 achievement in mathematics.
5) There is no significance difference between the means of Skill test and Pre-test achievement in mathematics among control group pre-service teachers.
6) There is significance difference between the means of Pre- test and Post- test 1 achievement in mathematics among control group pre-service teachers.
7) There is significance difference between the means of Post-test 1 and Post-test 2 achievements in mathematics among control group pre-service teachers.
8) There is significance difference between the means of Skill test and Pre-test achievement in mathematics among experimental group pre-service teachers.
9) There is significance difference between the means of Pre- test and Post-test 1 achievement in mathematics among experimental group pre-service teachers.
10) There is significance difference between the means of Post-test 1 and Post-test 2 achievements in mathematics among experimental group pre-service teachers.

**Delimitations of the study:**

The present study has the following limitations

1. This study is limited to Virudhunagar district in Tamil Nadu, India only.
2. The sample is confined to Pre-service teachers of elementary education only.
3. The size of the sample selected is limited.
4. Technology mediated instruction only given through offline mode.
5. The medium of instruction is restricted to Tamil.

**Educational implications:** This study is important for several reasons. First, this study contributed to utilize the technology available in the institution for teaching learning process. In Tamilnadu, all the District Institute of Education and Training have computers and laptop with LCD Projector. Since educators have Phobia in technology assisted instruction, instruments are not properly used in teaching learning. Second, this study is beneficial to overcome students' low self-confidence in mathematics learning. Third, this study beneficial to mathematics educators and other subject educators as well, as it give them a clear picture of the factors affecting student attention and thus allow them to develop programmes that aimed to retain student's attention. Blended learning strategy in D.El.Ed, make our prospective teachers confident of facing the challenges of modern teaching. This helped the students to develop a positive attitude towards mathematics. This improves their interest in mathematical activities. Moreover, the prospective teachers trained how to use the available technologies to reinforce the learning of conventional teaching. Finally, the study beneficial to prospective teachers and teacher educators since it provide evidence of the best practice of technology mediated mathematics teaching learning process.

**Conclusion:** Tamil Nadu Government had given free laptops to students those who have completed their higher secondary education through Government and Government aided schools. It is recommended to the students owning laptops to have a regular practice of using laptop for their study related to academic activities either through online or offline. It will put forward a new approach about different walks of life and give a platform for development. Blended learning is giving the student greater autonomy over his/her education growth path, using technology only as an enabler. The Pre and in- service teachers can make use of the technology available in the digital era to equip themselves through education related websites, Apps, software, videos, audios and make use of them for providing better teaching learning environment to students. It is more Preferential for the next generation teachers too.

## REFERENCES

1. Ho V.-T. Nakamori Y. Ho T.-B. Lim C. P. (2016). Blended learning model on hands-on approach for in-service secondary school teachers: Combination of e-learning and face-to-face discussion.Education and Information Technologies, 21(1), 185–208.
2. Inderbir Kaur (2016). Blended learning a convergence of online learning and face-to-face education for imparting better education in India: International journal of social sciences, 2(1), 226-235.
3. Johnson N & Kasi D (2014) Design Approaches of Blended Learning in Higher Education. In Proceedings of the International seminar onBlended learning: Opportunities and challenges in higher education (BLOCHE 2014) (Vol. 1, pp. 183-185) (A. M., Ed.). Salem, Tamilnadu
4. Johnson N et.al (2015) Octagonal framework for implementing Blended Learning Pedagogical Model. Trends in Teacher Education, 2015. Kattukuppam, Puducherry: St.Anne's College of Education & Research center.
5. Johnson N & Kasi D (2016) Involvement of Peer Group in Reflective Pedagogy. In National conference on Perspectives and Prospects of Technology Enabled learning (COPPTEL-2016) (Vol. I, pp. 234-235). Karaikudi, TamilNadu: Department of Education Alagappa University.
6. Johnson N & Kasi D (2016). Effectiveness of Low impact Blend in teaching arithmetic operation on Integer for class VIII students. In National conference on Perspectives and Prospects of Technology Enabled learning (COPPTEL-2016) (Vol. II, pp. 470-471). Karaikudi, Tamilnadu: Department of Education Alagappa University.