ORIGINAL RESEARCH PAPER

Education

THE EFFECTIVENESS OF TECHNOLOGY ENABLED LEARNING AMONG THE TEACHER – TRAINEES OF DIPLOMA IN TEACHER EDUCATION D.T. Ed PROGRAMME.

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ABSTRACT

Technology-enabled learning is selecting some appropriate technology and improving learning performance through the appropriate learning environment. The aim of the research study is to focus on the effectiveness of Technology-enabled learning among the Diploma in Teacher Education teacher trainees. Investigator has adopted experimental research method to analyse the framed hypotheses. A total sample of Thirty first year diploma teacher trainees from Vellore district in Chennai has been chosen for the present study. The finding of the research study shows that there exists a significant difference between mean value of the pre-test and post-test scores of learning science through lecture method. There exists a significant difference between pre-test post-test scores of the experimental group in learning science through technology-enabled learning. It has been found that both lecture method and technology-enabled learning (TEL) are effective in term of achievement among the Diploma in Teacher Education Students. But analyses between the post-test scores of experimental and control group reveals that Technology-enabled learning was more effective than the lecture method. Hence it is recommended to utilize the technology-enabled learning for students studying diploma in teacher education programme.

INTRODUCTION

Teaching and learning process is undergoing a transition phase from the Gurukula system of education to the technology-enabled system. The technology-enabled learning and teaching process provide a platform for E-learning, ICT, Blended learning, Flipped classroom, Virtual Learning, Synchronous, Asynchronous, video conferencing Google Apps, Chrome Book, Web 2.0 Tools, Web 3.0 Tools and Web Tools, 4.0.

Technology is influencing education in all aspects. It is necessary that the teachers have to be trained accordingly meeting the demands of the technological world. This in turns created the student-centric classroom scenario. Thus the teachers play a vital role in Technology enabled learning. It is deciphered that the teachers are able to cope with the changing techniques of teaching and growth in knowledge. The teacher should improve their knowledge and upgrade their techniques of teaching in their profession. New techniques must be adopted, and training institution may be equipped with all facilities.

NEED AND SIGNIFICANCE OF THE STUDY:

Future of modern society is the penetration of technological advancement in the field of education and merged to form the new field. The emerging technology is gradually covering the entire span of pedagogical roles. Technology-enabled learning is essential for teaching professionals. It enriches learning environment and enhances the achievement level. The technology-enabled learning provides opportunities for the learner, makes one's teaching effectively.

The present study focuses on the effectiveness of Technology-enabled learning in the classrooms among the Diploma in Teacher Education (D.T.Ed.) teacher trainees. The Technology-enabled learning courseware has developed and used in specific teacher training science subject to support classroom teaching. Professionalism is mainly focused on the quality of teaching so the modern training teacher trainees must know how to handle the technology in their classroom and how to incorporate in classroom teaching and learning process.

OBJECTIVES:

The following are the objectives of the study:
I. To develop Technology-enabled learning courseware in science at Diploma teacher training level.
ii. To find out the significant difference between pre-test and post-test mean values of the control group.
iii. To find out the significant difference between pre-test and post-test mean values of the experimental group.
iv. To find out the comparative effectiveness of experimental and control groups in their post-test performance.

HYPOTHESES:

The following are the hypotheses framed for the present investigation,
i. The pre-test mean score of the control group and the experimental group do not differ with reference to achievement.
ii. There exists a significant difference between the pre-test and post-test of the control group with reference to achievement.
iii. The pre-test mean score and the post-test mean score of the experimental group differ with reference to achievement.
iv. There exists a significant difference between the post-test mean scores of the experimental and control groups with reference to achievement.

METHOD ADOPTED

The investigator has adopted an experimental research method to achieve the objectives of the study for the present study. This research design is pre-test, post-test parallel-group design. Two groups involved in this study namely experimental group and control group. These groups were equated as nearly as possible. The present study aims to find out the effectiveness of Technology-enabled learning in science at Diploma teacher training level. Hence, experimental research method was chosen for the present study. l

VARIABLES OF THE STUDY

The variables of the study are presented hereunder
• Independent Variable - Technology Enabled Learning.
• Dependent Variable - Achievement Test

SAMPLE

The investigator has selected the sample for the present study

by using Random Sampling Technique from the Vellore District in Chennai. The investigator got prior permissive from the Teacher training Institution to conduct the experimentation and ensure the required technology for students. A total sample of 30 students from first year diploma teacher trainees were selected. These 30 learners were divided equally using simple random sampling technique into two groups namely the control group and the experimental group consisted of 15 students each.

STATISTICAL TECHNIQUES USED

The investigator used the following statistical techniques for the analysis.
1.   Descriptive analysis – (Mean and Standard Deviation)
2.   Differential analysis – ('t' test and 'F' test)

STATISTICAL ANALYSIS

Table No:1 Significance of difference between control group and experimental groups in the pre-test scores

Group	N	Mean	SD	t-value
Control	15	38.80	5.140	0.1247
Experimental	15	39.05	5.818	

** Not Significant at 0.05 level

It is evident from table 1, that the pre-test mean value of control group is 38.80 with standard deviation of 5.140. The pre-test mean value of experimental group is 39.05 with standard deviation of 5.818. The Calculated t value 0.1247 was less than the standard table value 1.96 at 0.05 levels of significance. Therefore it is concluded that there exists no significant difference between pre-test scores of control group and experimental groups.

Figure No:1 Graph showing significance of difference between control group and experimental group in pre test scores.
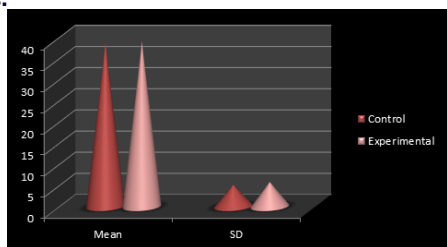

Fig No:5 Clearly indicates that the performance of the control and experimental groups in their pre-test scores are not significantly differ. Hence these two groups are more or less equal.

Table - 2 Significance of difference between pretest and post test scores of control group

Test	N	Mean	SD	t-value
Pre test	15	38.80	5.140	18.14**
Post test	15	59.65	5.868	

 ** Significant at 0.01 level

It is evident from the table 2, that the pretest mean value of control group is 38.80 with standard deviation of 5.140. The posttest mean value of control group is 59.65 with standard deviation of 5.868. The calculated t value 18.14 is greater than the standard table value 2.36 at 0.01 levels of significance. Therefore it is concluded that there exists significant difference between pre test and post test scores of control group in learning Science through lecture method.

Figure No:2 Graph showing significance of difference between pre test and post test scores of control group
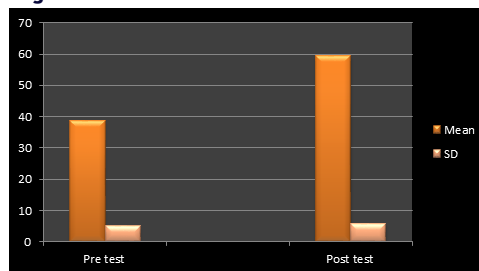
learning Science Lecture method

Fig. No.I Clearly indicate that the mean value of Post-test is enhanced than the Pre-test mean value.
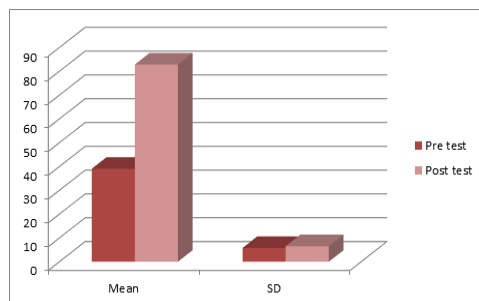
Table No:3 Significance of difference between pre-test and post-test scores of experimental group

Test	N	Mean	SD	t-value
Pre test	15	39.05	5.818	24.19**
Post test	15	82.85	6.546	

** Significant at 0.01 level

It is evident from Table 3 that the pre-test mean value of experimental group is 39.05 with standard deviation of 5.818. The post-test mean value of experimental group is 82.85 with standard deviation of 6.546. The Calculated t value 24.19 was greater than the standard table value 2.36 at 0.01 levels of significance. Therefore it is concluded that there exists significant difference between pre-test and post-test scores of experimental group in learning Science through Technology enabled learning.

Figure No:3 Graph showing significance of difference between pretest and post test scores of experimental group

The Fig No.2 shows that mean value of the Post-test score is higher than the mean value of the pre-test score. It indicates the supremacy of Technology-enabled learning courseware in Science.

Table No:4 Significance of difference between control group and experimental group in post test scores.

Group	N	Mean	SD	t-value
Control	15	59.65	5.868	9.104
Experimental	15	82.85	6.546	

**   Significant at 0.01 level

It is evident from the table 4, that the post-test mean value of control group is 59.65with standard deviation of 5.868. The post-test mean value of experimental group is 82.85 with standard deviation of 6.546. The Calculated t value 9.104 was higher than the standard table value 2.36 at 0.05 levels of significance. Therefore it is concluded that there exists a significant difference between post test scores of control group and experimental group which ensures the effectiveness of Technology enabled learning Courseware than the Lecture method in learning Science at D.TEd., Level.

Figure No.4 Graph showing significance of difference between control group and experimental group in post test scores.
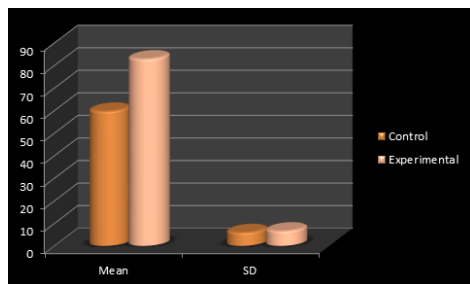
It is evident from Figure No.4, that the performance of the experimental group was higher than the performance of the control group in their post-test scores.

DISCUSSION OF THE FINDINGS:

The main purpose of this study is to explore the effectiveness of Technology-enabled learning on teacher trainees' academic achievements. The result of the null hypothesis one showed that there exists no significant differences between the pre-test means of control and experimental groups were tested. Based on the interpretation of table 1, there was no statistical significance found and it was concluded that these two groups were homogeneous. The second hypothesis was tested and found correct. It is evident from table 2, there was a significant difference between the pre-test and post-test scores of the control group. Hence, the traditional lecture-based method of teaching is effective in the academic achievement of the teacher trainees. The study further revealed that the third hypothesis was accepted based on the analysis from table 3. It was concluded that technology-enabled learning method is efficient in terms of academic achievement of the trainees. The above two results revealed that the two different methods of learning are effective with respect to academic achievement of the trainees. Table 4 also revealed that the academic achievement of the experimental group in the post-test is higher than the control group academic achievement. The result showed that trainees who were taught by utilizing the strategy of technology-enabled learning got higher scores in the academic achievement test than trainees who were taught by utilizing traditional strategy. It is undoubtedly explained that the effectiveness of Technology- enabled learning over traditional lecture-based learning.

DELIMITATIONS OF THE STUDY:

The following are the delimitations of the Study:
1. The researcher selected the first year Diploma Teacher trainees only.
2. This study is confined only the limited unit in the first year Diploma teacher training science subject syllabus prescribed by the SCERT.
3. Only 30 first-year teacher trainees, has chosen as sample, from Diploma Teacher Trainees.
4. The experimental treatment was given for two months only.

SUGGESTIONS FOR FUTURE RESEARCHES

Based on the findings of the present study, the investigator under the guidance of the research supervisor, the following areas of research have been suggested for the future investigation.
1. A study may be conducted to investigate the effectiveness of the teacher's demonstration of Science subjects through Technology-enabled learning method.
2. The present study concentrated on the teacher-trainees at D.T.Ed., level of Vellore district. The further study may include all teacher-trainees of Bachelor of Education and Diploma in Teacher Education in the State of Tamil Nadu.
3. A study may be conducted to investigate the teaching efficiency of teacher-trainees using Technology-enabled learning resources.
4. The study may be conducted to examine the skill needed for teachers to develop Technology-enabled learning courseware.

CONCLUSION

This study examines the comparative effectiveness of Technology-enabled learning courseware among teacher trainees. The current study has contributed to the education about how technology can in effectively be utilized in learning in teacher training institutions. The findings of this research indicate the need of indigenous Technology Enabled Learning Courseware in science in accordance with the teacher-Trained of D.T.Ed. programme. Moreover, the study suggests the need for the orientation programme for the teachers in developing Technology-enabled learning courseware suitable for the learners.

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