



Effectiveness of E-content in Teaching of Mathematics Education among Below Average B.Ed. Student-Teachers

Dr. A.Pio Albina

Assistant Professor in Mathematics, Alagappa University College of Education, Alagappa University, Karaikudi-630 003, Tamil Nadu.

ABSTRACT

An investigation was made to find out whether there is any significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores. In the present study, the investigator has used experimental method and E-content in Teaching of Mathematics Education and Achievement test in Mathematics Education which were developed by the investigator were the tools used for data collection. The result revealed that there is significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores.

KEYWORDS : Effectiveness, E-content in Teaching of Mathematics Education, Below Average B.Ed. Student-Teachers.

INTRODUCTION

E-content can greatly aid the process of mathematical exploration and clever use of such aids can help the student-teachers to understand various methods available in teaching of mathematics education. Innovations like e-content and use of such material must be encouraged so that their use makes learning mathematics more enjoyable and meaningful.

SIGNIFICANCE OF THE STUDY

The research problem titled "Effectiveness of E-content in the Teaching of Mathematics Education among below average B.Ed. Student-Teachers" was chosen on the strength that our present education system is bound to cope up with the challenges of the modern world especially in the field of Teaching of Mathematics among B.Ed. student-Teachers for the simple reason, that the would-be-teachers would be the king makers of our nation. It is evident therefore; heavy responsibility is on their shoulders to carry out this uphill task through their competent and effective teaching methods.

Hence with the intention of developing E-content and testing its efficiency, the investigator conducted a study on "EFFECTIVENESS OF E-CONTENT IN TEACHING OF MATHEMATICS EDUCATION AMONG BELOW AVERAGE B.ED STUDENT-TEACHERS".

STATEMENT OF THE PROBLEM

"Effectiveness of E-content in Teaching of Mathematics Education among Below Average B.Ed. Student-Teachers"

DEFINITION OF THE OPERATIONAL TERMS

EFFECTIVENESS

According to Oxford Advanced Learner's Dictionary of current English by A.S.Hornby (OUP, 1984) "Effective" means the power to bring about a result. As far as the study is concerned, effect refers to impressive results in the learning of Methods of Teaching Mathematics by the B.Ed students consequent upon the operation of E-content. The effectiveness is determined in terms of the gain scores obtained by the students in the experiment. The gain score is obtained by subtracting the pre-test score from the post-test score.

E-CONTENT

Electronic content (E-content) or digital content is defined by those involved in creating, providing and distributing information as the digital content, which is viewed on screen and not on paper.

TEACHING OF MATHEMATICS EDUCATION

Teaching of Mathematics Education is the practice of teaching and learning mathematics.

B.ED. STUDENT-TEACHERS

B.Ed. Student-teachers refer to who are undergoing training for the profession of teaching (Bachelor of Education). In this study, B.Ed. Student-teachers refer to the student-teachers who belong to

mathematics department.

OBJECTIVES OF THE STUDY

1. To find the significance of difference between below average student-teachers of the control and the experimental group in their post-test mean scores.
2. To find the significance of difference between below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the knowledge level objectives.
3. To find the significance of difference between below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the understanding level objectives.
4. To find the significance of difference between below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the application level objectives.

METHOD ADOPTED FOR THE PRESENT STUDY

The investigator has used experimental method for the study.

Table - 1 Design of Experiment

S. No	Control group	Experimental group
1	Pre-test	Pre-test
2	Conventional method	e-content presentation method
3	Post test	Post test

TOOLS USED FOR STUDY

- 1) E-content developed by the investigator.
- 2) Achievement test in Mathematics Education developed by the investigator.

STATISTICAL TECHNIQUES USED

The following statistical techniques were used:

1. Mean
2. Standard Deviation
3. t' - test

ANALYSIS OF DATA

Null Hypothesis - 1

There is no significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores.

Table 2 Mean and Standard Deviation and 't' value of the below average B.Ed Student-teachers of Control and the experimental Group in Post Test

Group	Students	Mean	SD	t' value	Remark
Post-test scores of Control Group	Below average	51.00	8.72	9.52	Significant
Post-test scores of Experimental group		73.50	4.12		

(At 0.01 level of significance the table value of 't' is 3.707)
 The mean of the post-test scores of below average student-teachers of the control group is found to be 51.00. The mean of the post-test scores of below average student-teachers of the experimental group is found to be 73.50.

Since the calculated 't' value (9.52) is greater than the table 't' value, it is inferred from the above table that there is significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores.

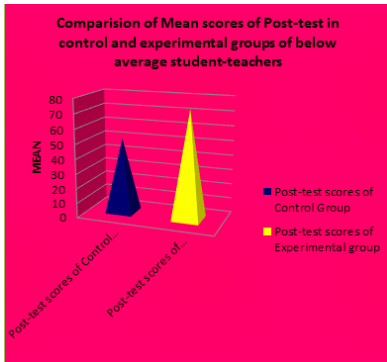


Figure 1 Comparison of Mean scores of Post-test in control and experimental groups of below average student-teachers

Null Hypothesis – 2

There is no significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the knowledge level objectives.

Table 3 Mean and Standard Deviation and 't' value of below average B.Ed. Student-teachers of the Control and the experimental Group in the Post Test at knowledge level

Group	Students	Mean	SD	't' value	Remark
Post-test scores of Control Group in their Knowledge level	Below average	31.25	4.17	13.06	Significant
Post-test scores of Experimental group in their Knowledge level		83.33	9.62		

(At 0.01 level of significance the table value of 't' is 3.707)
 The mean of the post-test scores of below average student-teachers of the control group in their knowledge level is found to be 31.25. The mean of the post-test scores of below average student-teachers of the experimental group in knowledge level is found to be 83.33.

Since the calculated 't' value (13.06) is greater than the table 't' value, it is inferred from the above table that there is significant difference between the below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the knowledge level objectives.

Null Hypothesis – 3

There is no significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the understanding level objectives.

Table 4 Mean and Standard Deviation and 't' value of below average B.Ed. Student-teachers of the Control and the experimental Group in the Post test at Understanding level

Group	Students	Mean	SD	't' value	Remarks
Post-test scores of the Control Group in their Understanding level.	Below average	61.36	23.91	0.68	Not Significant
Post-test scores of the Experimental group in their Understanding level.		70.45	4.54		

(At 0.01 level of significance the table value of 't' is 3.707)
 The mean of the post-test scores of below average student-teachers of the control group in their understanding level is found to be 61.36. The mean of the post-test scores of below average student-teachers of experimental group in knowledge level is found to be 70.45.

Since the calculated 't' value (0.68) is greater than the table 't' value, it is inferred from the above table that there is no significant difference between the below average student-teachers of the control and the experimental group in their post-test mean scores with reference to their understanding level objectives.

Null Hypothesis - 4

There is no significant difference between below average student-teachers of the control and their experimental group in their post-test mean scores with reference to the application level objectives.

Table 5 Mean and Standard Deviation and 't' value of below average B.Ed. Student-teachers of the Control and the experimental Group in the Post test at Application level

Group	Students	Mean	SD	't' value	Remark
Post-test scores of the Control Group in their Application Level	Below average	57.14	0.00	5.20	Significant
Post-test scores of the Experimental group in their Application Level		78.57	8.25		

(At 0.01 level of significance the table value of 't' is 3.707)

The mean of the Post-test Scores of below the average Student-teachers of the Control Group in Application level is found to be 57.14. The mean of the Post-test Scores of below the average Student-teachers of the Experimental Group in the Application level is found to be 78.57.

Since the calculated 't' value (5.20) is greater than the table 't' value, it is inferred from the above table that there is significant difference between the below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the application level objectives.

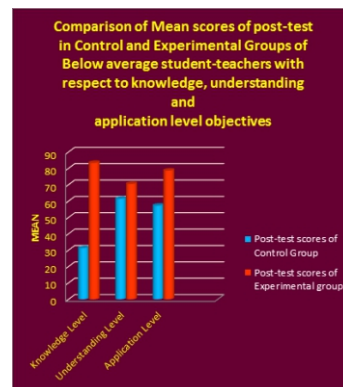


Figure 2 Comparison of Mean scores of post-test in control and Experimental Groups of below average student-teachers with respect to knowledge, understanding and application level objectives

FINDINGS

1. There is significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores.
2. There is significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the knowledge level objectives.
3. There is no significant difference between below average student-teachers of the control and the experimental group in their post-test mean scores with reference to the understanding level objectives.
4. There is significant difference between below average student-

teachers of the control and the experimental group in their post-test mean scores with reference to the application level objectives.

DISCUSSION

The above Findings reveal that there is significant difference between below average student-teachers of the control group and experimental group in their attainment of knowledge and application level objectives through e-content, but there is no significant difference in their attainment of understanding level. This may be due to the fact that e-content helps in retaining, recalling and recognising facts related to the methods of teaching mathematics, thus enhancing the student-teachers' attainment in the knowledge level. Since e-content widens opportunity for learning through practical methods, learning at one's own pace and encouraging self-learning and self-evaluation, which are the factors for enhancing attainment in the application level of objectives. Regarding understanding level, which requires skills of rationalisation, correlation, comparison and generalisation may be, learning through e-content has not helped significantly in the achievement of the below average student-teachers who cannot be ascertained to possess these skills.

Moreover it has been observed from the study "Effects of Applying Computer Assisted Instruction (CAI) on College Freshmen's English Vocabulary Development" by Hui-Yi Liang and Chih-Chien Yang (2013) indicate that the students who used computer-assisted learning in vocabulary building, their test results were generally better. Low-proficiency students benefited more from CAI than the high-proficiency students.

RECOMMENDATIONS OF THE STUDY

1. Lecture method in the class should be minimized and new technologies, such as; use of e-content and interactive multimedia courseware can be introduced.
2. The NCERT, SCERT, NCTE should introduce e-content in the form of curriculum development, to meet the challenges in education.
3. The teacher-educators and the student-teachers should be aware of the University Grant Commission's Consortium for Educational Communication.
4. Adequate infrastructure may be established in the educational institutions at all levels for the development and usage of e-content.
5. The e-content can be prepared to other topics like micro-teaching, aims and objectives of teaching mathematics, various techniques of teaching mathematics and lesson plan, etc.
6. Since e-content is found effective among the below average student-teachers it may be effective to the students of school and college level.

CONCLUSION

In the light of research findings, it has become crystal clear that E-content in the Teaching of Mathematics Education has provided higher achievement in reaching to the behaviors at the levels of knowledge, understanding, application and skill of the below average student-teachers.

REFERENCES

1. Agarwal, J.C (1996). Principles, Methods and Techniques of Teaching, Vikash Publishers Pvt.Ltd, New Delhi.
2. Aggarwal. Y.P., (1988). Statistical Methods, Sterling Publishers Pvt, Ltd, New Delhi.
3. Best W.John, Kahn and V.James (1999). Research in Education, Prentice Hall of India Pvt. Ltd., New Delhi.
4. Lokesh Koul (1997). Methodology of Educational Research, Vikash Publishing House Pvt.Ltd. New Delhi.
5. Rajasekar,S. (2003). Computer Education, Neelkamal Publication Pvt Ltd., New Delhi.
6. Sharma, A. (2008). Information and Communication Technology in Teaching, R.Lall Book Depot, Meerut.
7. Ferguson, George A., (1976). Statistical Analysis in Psychology and Education, 4th edition, McGraw Hill Koga Kusha Ltd., Tokyo.
8. Rao.V.K., Reddy R.S (2002). Resources of Effective Teaching, Commonwealth Publishers. New Delhi.
<http://www.aiaer.net/ejournal/vol19107/18.htm>
retrieved on 21.05.2016
9. <http://www.informaworld.com/smpp/title~content=t713605628>
retrieved on 5.08.2016
10. retrieved on 5.08.2016
11. <http://www.jstor.org/stable/30221231> retrieved on 15.08.2016