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E-CONTENT LEARNING MATERIAL FOR NORMAL ACHIEVERS AT SECONDARY SCHOOL LEVEL

Dr. Darsana B.G.*

ABSTRACT

In this study the researcher attempted to find out the effectiveness of a e-content learning material in Chemistry for enhancing the achievement normal achievers. The main objectives of the study were (i) (to test the effectiveness of a developed e-content learning material in Chemistry among ninth standard students. The method adopted was experimental, a pre-test, post-test and a delayed post-test were included. The total sample consists of 40 students; the tools used were (i) e-content learning material for experimental group (ii) achievement test on the selected topics developed by the investigator. The major findings of the study were (i) the e-content learning material was very effective in both post-test and delayed post-test when compared to the control group (ii) there exist significant difference in the post test and delayed post-test achievement score based on total sample.

***KEYWORDS**: E-Content, Pre-Test, Post-Test, Achievement Test, Experimental Group.*

Introduction

E-content learning material helps the students to provide wide range of experiences. They can understand the concept through manipulation of graphics in different dimensions. And the most encouraging thing about it is that whenever the teacher wishes one can modify that particular thing at one's convenience. Those graphics also attracts the students attention more and on the desired point. Concepts with the help of proper data. Teacher can present diagrams, texts, audios, videos and pictures which help them to understand the concepts clearly with longer effect. Besides all these advantages it has the big advantage of using the computer is that it gives the learner more confidence and freedom to design their own learning programme in terms of time, space and content. Unlike other audio-visual devices where the learners have limited option to listen to the dialogues, music etc. and /or watch the same cartoons movies etc. Variety and diversity according to the taste of the learner is possible through e-content learning material which makes the students to get involved in the process of learning.

Objectives of the Study

- To test the effectiveness of E-Content learning material by comparing the achievement in Chemistry of the treatment groups, viz., e-content Learning Material Group and Activity Oriented Method Group for total sample in terms of (i) Pre-test achievement scores (ii) Immediate post - test achievement scores and (iii) Delayed post test achievement scores.

Hypothesis

- The E-Content Learning Material is more effective for enhancing the immediate post-test achievement of normal achievers compared to the Activity Oriented Method.

Methodology

The major objective of the present study was to analyse the comparative effectiveness of the prepared e-content learning material over activity oriented method in enhancing the achievement in Chemistry of normal achievers at secondary school level. The investigator adopted non-equivalent pre-

* Principal, Badhiriya B.Ed Training College, University of Kerala, Kerala, India.

test post-test experimental design for this purpose. A sample of 40 standard IX students (40 students in the experimental group and 40 students in the control group) formed the experimental and control groups. Prior to the treatment, a pre-test was administered to both the groups. Then the prepared multimedia package was administered to the experimental group of students and the students from the control group were taught using activity method. After the treatment, both the groups were administered a post-test. A delayed post-test was also administered to both the groups. The pre-test, post-test and delayed post-test scores obtained by the experimental and control groups were subjected to appropriate statistical techniques to test the comparative effectiveness of the multimedia package and activity oriented method. The details of the analysis are given below

Analysis and Interpretation

- **Effectiveness of the E-content learning material over Activity Oriented Method in Enhancing the Post-test Achievement in Chemistry of Normal Achievers at Secondary School Level**

To find out the comparative effectiveness of the comparative effectiveness of the prepared e content learning material over activity oriented method in enhancing the post-test achievement in Chemistry of standard IX students, the pre-test and post-test scores obtained by students in the experimental and control groups were subjected to ANCOVA. The details are as follows:

The sum of squares, mean square variances and F-ratios for the pre-test and post-test scores of the treatment groups were computed and presented in Table 1

Table 1: Summary of ANOVA of Pre-test and Post-test Score Achievement Scores in Chemistry of MP and AOM Groups

Source of Variation	df	SSx	SSy	MSx(Vx)	MSy(Vx)
Among Means	1	12.80	105.80	12.80	105.80
Within Groups	78	1215.95	1278.15	15.59	16.4
Total	79	1228.75	1383.95		

Fx= 0.82
Fy = 6.42
From Table F for df 1/78
F at 0.05 level= 3.08 , F at 0.01 level= 7.01

The F ratios for the two sets of scores were tested for significance. Since the table value of F for df 1/78 is 3.08 at 0.05 level and 7.01 at 0.01 level of significance, the obtained F_X value (F_X = 0.82) is not significant. The obtained Fx value shows that the random assignment of the subjects to the two groups was quite successful. The Fy obtained (Fy = 6.42) is significant at 0.05 level, because it is above the table value at 0.05 level of significance. The analysis of variance of the y-means indicates that there is significant difference between the treatment groups in their post-test scores.

For correcting the final y-scores for the difference in the pre-test scores, the adjusted sum of squares and adjusted mean square variances for post-test scores were computed and F-ratio was calculated. The results are given in Table 2

Table 2: ANCOVA of Pre and Post-test Scores of Standard IX Students in their Achievement in Chemistry

Source of Variation	df	SSx	SSy	Sxy	SSyx	MSyx (Vyx)	SDyx
Among Means	1	12.80	105.80	36.80	57.09	57.09	
Within Groups	77	1215.95	1278.15	914.45	590.44	7.67	2.77
Total	78	1228.75	1383.95	951.25	647.53		

Fy.x=7.44
From Table F, for df 1/77
F at 0.05 level=3.08 F at 0.01 level= 7.01

Since the obtained Fy.x is higher than Table value at 0.01 level, it is significant at 0.01 level (Fy.x = 7.44; $p < 0.05$). This F-ratio for the adjusted post-test scores shows that the final mean scores of the treatment groups differ significantly after they have been adjusted for differences in the pre test scores.

The adjusted means for the post test scores of elementary teachers in the experimental and control groups were compared using correlation and regression and are given in Table 3

Table 3: Adjusted Means for the Post-test Achievement Scores of Standard IX Students

Groups	N	Mx	My	My.x(adjusted)
Experimental Group	40	21.28	37.68	37.37
Control Group	40	20.48	35.38	35.68
General Means		20.88	36.53	36.53

t = 2.74
from the Table D, for df 77
t at 0.05 level= 2.00 t at 0.01 level= 2.66

The adjusted mean scores of the post-test achievement in chemistry of Standard IX students in the experimental group and control groups were compared. The t-value obtained is significant at 0.01 level ($t = 2.74$; $p < 0.01$). This shows that there is significant difference between the experimental and control groups in their adjusted post-test in chemistry. The higher adjusted mean score of the experimental group of normal achievers (adjusted mean = 37.37) indicates that they have better achievement in chemistry when compared to the control group of students (adjusted mean = 35.68). This clearly shows that the e content learning material administered by the investigator in more effective in enhancing the post-test achievement in Chemistry of standard IX students when compared to the activity oriented method.

Thus the hypothesis formulated in this context "The e-content learning material is more effective for enhancing the immediate post-test achievement of normal achievers compared to the Actively Oriented Method" is accepted.

Conclusion

The present study indicate that the e-content learning material is very effective than that of the traditional way of teaching. The post-test means achievement scores of the experimental group showed higher value. This implies that the students who were taught Chemistry through e-content learning material had shown significant improvement in their achievement. This suggests that e-content learning material contributed better achievement in the present scenario, therefore this type of multimedia packages should include in our curriculum. Similarly, the e-content learning material is very effective for students with medium of instruction in their achievement in Chemistry in both post-test and delayed post-test.

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