

EFFECTIVENESS OF TEACHER ASSISTED MULTIMEDIA PACKAGE FOR ENHANCING ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS BASED ON MEDIUM OF INSTRUCTION

Dr. Darsana B.G*

ABSTRACT

In this study the researcher attempted to find out the effectiveness of a multimedia package in Chemistry for enhancing the achievement. The main objectives of the study were (i) to test the effectiveness of a developed teacher assisted multimedia package in Chemistry among ninth standard students (ii) to test effectiveness of the multimedia package in Chemistry based on sub sample medium of instruction. The method adopted was experimental, a pre-test, post-test and a delayed post-test were included. The total sample consists of 160 students; the tools used were (i) Multimedia package for experimental group (ii) achievement test on the selected topics developed by the investigator and socio-economic status scale (for sub sample). The major findings of the study were (i) the multimedia package 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 medium of instruction as sub-sample.

Keywords: *Multimedia Package, Activity-Oriented Method, TAM, Post-Test Scores, TMPG.*

Introduction

The invention of moving images and seeing the visuals had a great impact than any other Medias. A picture is worth thousand words, full motion video embedded in documents is worth ever more. Multimedia is the integration of multiple forms of media. This includes text, graphics, audio, video, etc. For example, a presentation involving audio and video clips would be considered a "multimedia presentation." Educational software that involves animations, sound, and text is called "multimedia software." Due to the advancements in computer speeds and storage space, multimedia is commonplace today. Multimedia-based learning is becoming increasingly common. While it has limitations, and certainly should not be seen as a substitute for face-to-face interaction, it does have numerous advantages for teacher professional development. Multimedia professional development experiences can be interactive and take place at any time and at any place. Also the information contained on the Internet sources is unlimited, up to date, inexpensive, and searchable. Here the investigator tries to incorporate multimedia approach in learning chemistry at secondary level.

Objectives of the Study

- To test the effectiveness of the multimedia package by comparing the achievement in Chemistry of the treatment groups, that is activity-oriented method (AOM) as control group and teacher assisted multimedia package (TAM) as experimental group.
- To test the effectiveness of the multimedia package by comparing the achievement in Chemistry of the treatment groups, that is activity-oriented method as control group and multimedia package as experimental group based on the sub sample medium of instruction.

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

Hypothesis

- There exists significant difference between Activity Oriented Method group and Multimedia Package group with regard to immediate post-test and delayed post-test.
- There exists significant difference between Malayalam and English Medium students in Teacher Assisted Multimedia Group in their pre-test achievement scores in Chemistry'

Methodology

In the present study the pre-test experimental treatment and post-test design was employed. It involved two groups of students. One experimental group was taught Chemistry through the teacher assisted multimedia package and the control group was taught through the conventional method. The design comprised of four stages. The first stage involved the pre-testing of all the students of the control group and experimental group on their academic achievement. The second stage involved treatment of the multimedia package to the experimental group for ten weeks. This consisted of teaching of five learning points of Chemistry included in the multimedia package. Similarly the control group was treated with the conventional method. In the third stage, the students were post-tested with an achievement test. In the fourth stage a delayed post-test also conducted. Sample selected were ninth standard students from various schools. After equating the groups they were divided into activity oriented group (as control group) and teacher assisted multimedia package group (as experimental group) having 80 students each. Tools used were teacher assisted multimedia package (TAM), an achievement test and a general data sheet for specifying the medium of instruction. Statistical techniques used were mean and standard deviation for pre-test, post-test and delayed post-test scores and t-test was applied for testing the significance of the difference between control and experimental groups.

Analysis and Interpretation

- **Comparison of Pre-Test Scores of Activity Oriented Method Group (control) and Multimedia Package Group (Experimental)**

Table 1: Result of the Test of Significance of the Pretest Achievement Scores of AMG and TMPG

Group	N	Mean	SD	T value
AMG	80	14.5875	2.22582	0.15
TMPG	80	14.5375	1.91558	

Table 1 shows that the t-value is 0.15 which is not significant. This shows that there is no significant difference between the means of the pre test scores of the students in the AMG and TMPG. This result shows that the two groups do not differ significantly with respect to the achievement in Chemistry. Thus the hypothesis 'there is no significant difference between the treatment groups [Teacher Assisted Multimedia Package Group (TMPG), and Activity Method Group (AMG)] in their pre-test achievement scores' is **accepted**

- **Comparison of Post-Test Scores of Activity Method Group (control) and Multimedia Package Group (Experimental):**

Table 2: Result of the Test of Significance of the Post-Test Achievement Scores of AMG and TMPG

Group	N	Mean	SD	T value
AMG	80	17.2625	1.68946	10.30**
TMPG	80	20.0500	1.73497	

**Significance at 0.01 level.

Table 2 shows that the t-value obtained is 10.30 which is significant at 0.01 level, indicating that there is significant difference between the means of the post test scores of the IS students in the AMG and MPG. This means that two groups differ significantly in the post test achievement in Chemistry. Since the mean score of TMPG is higher than that of AMG, the TMPG is considered superior to the control group. Thus the hypothesis 'there is no significant difference between the treatment groups [Multimedia Package Group (TMPG), and Activity Method Group (AMG)] in their post-test achievement scores' is not accepted

- **Comparison of delayed post-test Scores of Activity Method Group (control) and Multimedia Package Group (Experimental)**

Table 3: Result of the Test of Significance of the Delayed Post-Test Achievement Scores of AMG and TMPG

Group	N	Mean	SD	T value
AMG	80	15.5000	1.64586	11.78**
TMPG	80	18.6500	1.73643	

**Significance at 0.01 level.

Table 3 shows that the t-value obtained is 11.78 which is significant at 0.01 level, indicating that there is significant difference between the means of the retention test scores of the students in the AMG and TMPG. This means that two groups differ significantly in the delayed post test achievement scores in Chemistry. Since the mean score of TMPG is higher than that of AMG, the TMPG is considered superior to the control group. Thus the hypothesis 'there is no significant difference between the treatment groups [Multimedia Package Group (TMPG), and Activity Method Group (AMG)] in their delayed post-test test achievement scores' is **not accepted**

- **Comparison of Pre-test Post-test and Delayed Post-test Achievement Scores of Students Based on Medium of Instruction (TAMG)**

Table 4: Results of Test of Significance for the Difference between Mean Pre-test Post-test and Delayed Post-test Achievement Scores of Students in TAMG based on based Medium of Instruction (TAMG)

Tests	Medium	N	Mean	Std. Deviation	t-value
Pre	Malayalam	44	14.82	1.79	1.44
	English	36	14.19	2.03	
Post	Malayalam	44	19.73	1.88	1.92
	English	36	20.44	1.46	
Delayed Post-test	Malayalam	44	18.32	1.79	1.94
	English	36	19.06	1.60	

From Table 4, it is clear that the t-value obtained for pre-test scores is 1.44 which is not significant even at 0.05 level. This shows that there is no significant difference between English medium and Malayalam medium Intellectually Superior students in the TAMG in their pre-test achievement scores. Thus, the sub-hypothesis formulated in this context '*there is significant difference between Malayalam and English Medium students in TAMG in their pre-test achievement scores in Chemistry*' is **not accepted**.

The t-value obtained for post-test score is 1.92 and is not significant even at 0.05 level. This means that there is no significant difference in the post-test achievement scores of Malayalam and English medium Intellectually Superior students in TAMG. Thus, it can be concluded that the post-achievement of intellectually superior students in TAMP group is not influenced by the medium of instruction. Thus the sub-hypothesis formulated in this context '*there is significant difference between Malayalam and English Medium Intellectually Superior students in TAMG in their post-test achievement in Chemistry*' is **not accepted**.

The t-value obtained for delayed post-test scores is 1.94 and is not significant even at 0.05 level. This shows that there is no significant difference in the delayed post-test achievement of Intellectually Superior Malayalam medium and English medium students in the TAMG. Thus it can be concluded that the delayed post-test achievement of Intellectually Superior students in TAMG is not influenced by the medium of instruction. Thus the sub-hypothesis formulated in this context '*there is significant difference between Malayalam and English Medium Intellectually Superior students in TAMG in their delayed post-test achievement in Chemistry*' is **not accepted**.

The above analysis reveals irrespective of the medium of instruction, the teacher-assisted multimedia package is effective in enhancing the post-test and delayed post-test achievement in Chemistry of intellectually superior students at secondary level.

Findings

- The students belong to TMPG taught Chemistry had scored significantly higher on the post-test achievement than that of the AMG. (CR = 10.30; $p < 0.01$)

- The students belong to TMPG taught Chemistry had scored significantly higher on the delayed post-test achievement than that of the AMG. (CR = 11.78; $p < 0.01$)
- There is no significant difference between Malayalam and English medium students in the Teacher-Assisted Multimedia package Group in their pre-test scores (CR = 1.44; $p > 0.05$).
- There is no significant difference between Malayalam and English medium students in the Teacher-Assisted Multimedia package Group in their post-test scores (CR = 1.92; $p > 0.05$).
- There is no significant difference between Malayalam and English medium students in the Teacher-Assisted Multimedia package Group in their delayed post-test scores (CR = 1.94; $p > 0.05$).

Conclusion

The present study indicate that the multimedia package 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 multimedia package had shown significant improvement in their achievement. This suggests that multimedia package contributed better achievement in the present scenario, therefore this type of multimedia packages should include in our curriculum. Similarly, the multimedia package 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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