



Effect of Multimedia Package on Achievement in Chemistry Subject of Students of Standard XII

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Abstract:

In present era of information technology, in every field computer based applications are used to improve quality. Field of education is also one of them. Multimedia, virtual reality and augmented reality are some advance technology which are used in teaching learning process. In present study, the researcher has also used a high quality multimedia package in Chemistry subject to check its effect on achievement of students of Grade XII in Chemistry subject.

We are now in the age of visual information where visual content plays a role in every part of life. As 65 percent of the population is visual learners, images are clearly key to engaging people in eLearning courses. Moving and still images have been included in learning materials for decades, but only now has faster broadband, cellular networks, and high-resolution screens made it possible for high-quality images to be a part of eLearning visual design. Graphic interfaces made up of photos, illustrations, charts, maps, diagrams, and videos are gradually replacing text-based courses. In present study the researcher has used a well-developed multimedia software in chemistry subject to study its effect on achievement of students of standard XII.

1. Introduction to multimedia package

The researcher has used multimedia software constructed by **Concept Virtual Learning Private Limited**. In this software there were different sub application for teaching learning processes. There was animated multimedia content in Chemistry subject for the students of standard XII. The software has question bank for practices, self-evaluation tests and self-developed progress report card. The researcher has chosen two different chapters: 1) Solid State and 2) Halo Arene and Halo Alkane.

2. Objectives

Objectives of the present study are as follows:

1. To study the effect of multimedia package on achievement of students of Grade XII in Chemistry subject.
2. To study the effect of multimedia package on achievement of students of Grade XII in Chemistry subject in context of their group.
3. To study the effect of multimedia package on achievement of students of Grade XII in Chemistry subject in context of their gender.

3. Hypotheses

Hypotheses of present research are as follows:

- H₀₁** There is no significant difference between mean scores of achievement test of students of experimental group and controlled group.
- H₀₂** There is no significant difference between mean scores of achievement test of boys of experimental group and controlled group.

H₀₃ There is no significant difference between mean scores of achievement test of girls of experimental group and controlled group.

H₀₄ There is no significant difference between mean scores of achievement test of boys and girls of experimental group.

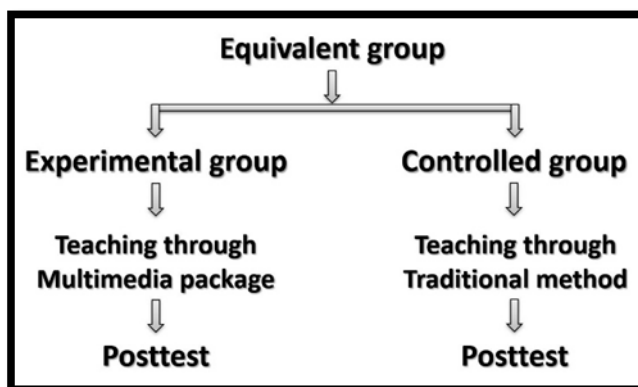
4. Limitations of the study

1. The present study was conducted in St. Joseph School situated in Ahmedabad city.
2. The students of standard XII from science stream were involved in this study.

5. Significance of the study

The researcher has conducted a study to check the effectiveness of multimedia package on achievement of students of Grade XII in Chemistry subject. To conduct this experiment, the researcher has used a well developed multimedia package developed by Concept Virtual Learning Private Ltd. According to research, a benefit of multimedia learning is that it takes advantage of the brain's ability to make connections between verbal and visual representations of content, leading to a deeper understanding, which in turn supports the transfer of learning to other situations. This research will help teachers to understand the importance of multimedia package in teaching Chemistry. The students will also inspire for self-learning through high quality multimedia content available on internet.

6. Experimental design



7. Sample of the study

To conduct the present research the researcher has chosen St. Joseph English High School situated in Ahmedabad city. There were 80 students selected from this school. Therefore, 80 students from St. Joseph School were sample of present study. Out of this sample 40 students in experimental group and 40 students in controlled group had been distributed. In each group, there were 24 boy and 16 girls.

8. Research tool

A self constructed achievement test worth 50 marks was research tool in this study.

9. Data collection

After experimentation was over, a 50 marks achievement test was given to the students. For this test the students were give 90 minutes to complete the test. Before the test starts, the students were given proper instructions about how to give responses given in achievement test. Once the test was completed, the answer sheets were collected and store for further process.

10. Data analysis and interpretation

The data was classified and proper statistical method was used to analyze the data. The researcher has constructed four hypotheses for this study. To check the hypotheses, critical ratio (t-test) was found and interpreted the results.

The results and interpretation of analyzed data in order of hypotheses are mentioned below.

H₀₁: There is no significant difference between mean scores of achievement test of students of experimental group and controlled group

Table 1.0 Mean, SD, SED and critical ratio of students of experimental group and controlled group

Students	N	Mean	SD	SED	t	Remark
Experimental	40	41.85	4.21	0.93	6.28	**
Controlled	40	36.00	4.13			

Table t-value		
df	0.05	0.01
78	1.99	2.64

According to above table, mean of students of experimental group and controlled group are 41.85 and 36.00 respectively. Standard deviations are 4.21 and 4.13 respectively. Calculated t-value is 6.28. For, df=78, table t-value is 1.99 at 0.05 level and 2.64 at 0.01 level. Thus, calculated t-value is more than table t-value at both the levels. Therefore, hypothesis is rejected at both the levels and there is a significant difference between mean scores of students of experimental group and controlled group. Moreover, mean score of students of experimental group is more than mean score of students of controlled group. This indicate that achievement of students of experimental group is more than achievement of students of controlled group. Which shows positive effect of multimedia package on achievement of students in Chemistry subject. Therefore, we can say that teaching through multimedia package is more effective than teaching through traditional chalk and talk method.

H₀₂: There is no significant difference between mean scores of achievement test of boys of experimental group and controlled group.

Table 2.0 Mean, SD, SED and critical ratio of boys of experimental group and controlled group

Boys	N	Mean	SD	SED	t	Remark
Experimental	24	41.42	4.50	1.31	4.33	**
Controlled	24	35.75	4.56			

Table t-value		
df	0.05	0.01
46	2.01	2.69

According to above table, mean of boys of experimental group and controlled group are 41.42 and 35.75 respectively. Standard deviations are 4.50 and 4.56 respectively. Calculated t-value is 4.33. For, df=46, table t-value is 2.01 at 0.05 level and 2.69 at 0.01 level. Thus, calculated t-value is more than table t-value at both the levels. Therefore, hypothesis is rejected at both the levels and there is a significant difference between mean scores of boys of experimental group and controlled group. Moreover, mean score of boys of experimental group is more than mean score of boys of controlled group. This indicate that achievement of boys of experimental group is more than achievement of boys of controlled group. Which shows positive effect of multimedia package on achievement of boys in Chemistry subject. Therefore, we can say that teaching through multimedia package is more effective than teaching through traditional chalk and talk method.

H₀₃: There is no significant difference between mean scores of achievement test of girls of experimental group and controlled group.

Table 3.0 Mean, SD, SED and critical ratio of girls of experimental group and controlled group

Girls	N	Mean	SD	SED	t	Remark
Experimental	16	42.5	3.78	1.28	4.77	**
Controlled	16	36.38	3.48			

Table t-value		
df	0.05	0.01
30	2.04	2.75

According to above table, mean of girls of experimental group and controlled group are 42.5 and 36.38 respectively. Standard deviations are 3.78 and 3.48 respectively. Calculated t-value is 4.77. For, df=30, table t-value is 2.04 at 0.05 level and 2.75 at 0.01 level. Thus, calculated t-value is more than table t-value at both the levels. Therefore, hypothesis is rejected at both the levels and there is a significant difference between mean scores of girls of experimental group and controlled group. Moreover, mean score of girls of experimental group is more than mean score of girls of controlled group. This indicates that achievement of girls of experimental group is more than achievement of girls of controlled group. Which shows positive effect of multimedia package on achievement of girls in Chemistry subject. Therefore, we can say that teaching through multimedia package is more effective than teaching through traditional chalk and talk method.

H₀₄: There is no significant difference between mean scores of achievement test of boys and girls of experimental group.

Table 4.0 Mean, SD, SED and critical ratio of boys and girls of experimental group

Experimental	N	Mean	SD	SED	t	Remark
Boys	24	41.42	4.50	1.32	0.82	NS
Girls	16	42.5	3.78			

Table t-value		
df	0.05	0.01
38	2.02	2.71

According to above table, mean of boys and girls of experimental group are 41.42 and 42.50 respectively. Standard deviations are 4.50 and 3.78 respectively. Calculated t-value is 0.82. For, df=38, table t-value is 2.02 at 0.05 level and 2.71 at 0.01 level. Thus, calculated t-value is less than table t-value at both the levels. Therefore, hypothesis is not rejected at both the levels and there is no significant difference between mean scores of boys and girls of experimental group. Therefore, it is said that effect of multimedia package on boys and girls are equal.

11. Findings

- The result of experiment revealed that achievement in post test of students of experimental group is significantly more than students of controlled group of St. Joseph High School. Which shows positive effect of multimedia package on achievement of students in Chemistry subject. Therefore, we can say that teaching through multimedia package is more effective than teaching through traditional chalk and talk method.
- The achievement of boys of experimental group is more than achievement of boys of controlled group of St. Joseph High School. Which shows positive effect of multimedia package on achievement of boys in Chemistry subject. Therefore, we can say that teaching through multimedia package is more effective than teaching through traditional chalk and talk method.
- It is shown that the achievement of girls of experimental group is more than achievement of girls of controlled group of St. Joseph High School. Which shows positive effect of multimedia package on achievement of girls in Chemistry subject. Therefore, we can say that teaching through multimedia package is more effective than teaching through traditional chalk and talk method.
- There is no significant difference found between mean scores of boys and girls of experimental group of St. Joseph High School. Therefore, it is said that effect of multimedia package on boys and girls are equal.

12. Conclusion

After all it was found that teaching through a high quality multimedia package is more effective than traditional teaching method. In present study the researcher has used a well developed multimedia package in Chemistry subject and checked its effect on achievement of students of Grade XII. It was very satisfactory experiment and the researcher has revealed the facts.

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