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EFFECT OF MULTIMEDIA PACKAGE ON DELAYED ACHIEVEMENT OF STANDARD IX STUDENTS IN CHEMISTRY

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ABSTRACT:

There is a concrete space for the usage of technology in education, multimedia technology empowers the educational process by means of increased interaction between teachers and the students also the place of teachers were occupied by the machines. Multimedia can provide learners with endless possibilities of quality teaching and learning, it has overcome the barriers of time and space. The process of knowledge acquisition becomes more efficient when the learners experience an event through a multimedia simulation. In this study the major objective is to study the effectiveness of the developed multimedia package in terms of delayed achievement scores of standard IX students in Chemistry. The method adopted was experimental, 25 IX standard students as sample, the tool implemented was a multimedia package developed by researcher, and the procedure was taking place in three different phases. The major findings of the study was the developed multimedia package was found to be significantly effective in terms of enhancing students' delayed post-test achievement in Chemistry in comparison to the activity oriented method. Thus by using multimedia Package in teaching Chemistry in schools for better achievement and long term retention of the Chemistry knowledge. The findings showed that the developed Multimedia Package created an interesting atmosphere where the students learnt and achieved more for both short term and long term benefits.

KEYWORDS: Delayed Achievement , Multimedia Package , technology in education.

BACKGROUND OF THE STUDY

In this technological driven era, the advancement in technology has made it quite possible to take advantage of many modern facilities in the science teaching learning process. Since both human nature and the science-learning process are dynamic phenomena, the need for the newest techniques and technological devices is felt in science teaching. Multimedia package is one the forms of Educational Technology using the potential of computers and following the pedagogy of teaching and learning, which has great impact in the field of education. With its unique features like, drill, simulation, animation, tutorial and gaming, it makes teaching and learning more interesting and encouraging for the students. It can help to retain the learned concepts for a longer time hence can be more useful in the life. Hence, attempt is made in the present study to use multimedia for long term effect in the teaching learning of Chemistry as Multimedia package can be more advantageous to both students and teachers. It allows the teacher to give attention to individual students. It also satisfies the need of the students' imagination as they can modify the presented content according to their imagination. Teaching them through Multimedia package will help them to be familiar with the teaching and learning with the help of computer which will expose them to technology in the further years. Many research studies show that

multimedia package has been effective in teaching-learning. Similarly the attempt is also made to see whether learning through Multimedia package could have a long term impact on students. Considering all these points, the researcher had made an attempt to develop and try out a multimedia package on standard IX students to teach Chemistry and to see its effect on delayed achievement of students.

OBJECTIVES OF THE STUDY

- To study the effectiveness of the developed multimedia package in terms of achievement of standard IX students in Chemistry.
- To study the effectiveness of the developed multimedia package in terms of delayed achievement of standard IX students in Chemistry.

HYPOTHESIS OF THE STUDY

1. There is no significant difference between the mean Chemistry achievement scores of the standard IX students of experiment groups those studied through multimedia package and those of control group those studied through activity oriented method.
2. There is no significant difference between the delayed mean Chemistry achievement scores of the standard IX students of experiment groups those studied through multimedia package and those of control group those studied through activity oriented method.

OPERATIONAL DEFINITIONS OF TERMS

- **Multimedia Package:** For the present study Multimedia Package was, developed by the researcher with the help of software which includes the explanation, elaboration, extrapolation and evaluation phases.
- **Achievement in Chemistry:** The marks scored by the students in the test constructed by the researcher on the topics selected in periodic table were considered as the achievement of the students in chemistry for the present study.
- **Delayed Achievement in Chemistry:** The marks scored by the students in the achievement test in chemistry administered after two months (delayed) of the post testing were considered as the delayed achievement of the students in Chemistry for the present study.

METHODOLOGY

Experimental method was used for the study. 25 students from each section those were made equivalent on the basis of the pre-test achievement score in Chemistry constituted as the sample for control and experimental group.

TOOL FOR DATA COLLECTION

Achievement Test

The Researcher constructed an achievement test in periodic table for the pre-testing, post-testing and delayed post-testing purposes. Hence the achievement test in chemistry was prepared with these selected topics. A blue print was prepared for the construction of the achievement test in Chemistry considering the type and level of questions. The blue print was of 50 marks with all objective type questions equally from all these four topics having application skill and evaluation levels. The prepared achievement test in Chemistry was shown to ten subject experts in Chemistry teaching for the purpose of validation. The suggestions of the experts were duly incorporated in the chemistry achievement test. After determining the content validity of the Chemistry achievement test, the test was administered to 120 standard IX Chemistry students and the reliability of the achievement test was determined using split-half method. The reliability coefficient using split-half method was found to be $r=0.92$. Following this procedure the chemistry achievement test was standardized.

PROCEDURE OF DATA COLLECTION

Data collection was done in three phases like, pre-testing, post testing, and delayed post-testing. In the

first phase, the researcher administered the achievement test in Chemistry as the pre-test on the students of both experimental and control group. Researcher arranged 25 classes of 45 minutes duration for the experimental group in the time table for teaching Chemistry. A similar arrangement was done for the control group in the time table i.e. 25 classes of 45 minutes duration for teaching Chemistry. The researcher acted as a facilitator and guide and cleared the doubts of the students. The researcher took the help of communicative approach during the process of the implementation of the multimedia package. In the second phase of data collection, the researcher administered the achievement test as post-test on the students of both the experimental and control groups to study the effectiveness of the developed multimedia package after 25 days of experimentation. In the third phase of data collection, the researcher administered the achievement test as delayed post-test on the students of both the experimental and control groups to study the delayed effectiveness of the developed multimedia package after 60 days of the post testing.

ANALYSIS AND INTERPRETATION OF DATA

Table 1: Mean, SD, and Standard Error of Mean wise distribution of Post-test and Delayed Post-test Achievement in Chemistry of Experimental and control group Students

Achievement in Chemistry	No. of Students	Post-test Mean	Delayed Post-test Mean	SD of Post-test	SD of Delayed Post-test	SE of Post-test Mean	SE of Delayed Post-test Mean
Experimental Group	25	45.44	46.12	3.19	3.64	0.65	0.73
Control Group	25	40.80	38.20	4.11	5.32	0.84	1.09

From Table-1, it is found that the mean achievement in Chemistry of experimental and control group students in post-test were 45.44 and 40.80 respectively out of total score of 50. The SDs from the post-test means for the achievement in Chemistry were found to be 3.19 and 4.11 respectively for experimental group and control group students with Standard Error of means of 0.65 and 0.84 for post-test achievement in Chemistry for the experimental and control group respectively. Comparing the post-test means it was found that the mean achievement in Chemistry of experimental group students was higher than that of control group students. From the SDs and Standard Error of means of both the groups in post-test, it is also observed that the experimental group was more homogeneous in terms of their achievement in Chemistry in comparison to their control group counterpart. The higher mean achievement in post-test score of experimental group in Chemistry and less SD and standard error of mean of the experimental group in comparison to the control group, may be due to the implementation and effect of multimedia package.

From Table-1, it is also found that the mean achievement in Chemistry of experimental and control group students in delayed post-test were 46.12 and 38.20 respectively. The SDs from the delayed post-test means for the achievement in Chemistry were found to be 3.64 and 5.32 respectively for experimental group and control group students with Standard Error of means of 0.73 and 1.09 for delayed post-test achievement in Chemistry for the experimental and control group respectively. Comparing the post-test mean and delayed post-test mean of the experimental group it is found that the mean delayed achievement in Chemistry of experimental group students was higher than that of the post-test achievement in Chemistry that may be due to the practice effect of periodic table and more learning during this two months. From the SDs and Standard Error of means of the group in post-test and delayed post-test, it is also observed that there is slight increase in SD and standard error of the mean in the delayed post-test of the experimental group. Similarly, comparing the post-test mean and delayed post test mean of the control group, it is found that the mean delayed achievement in Chemistry of control group students was lower than that of the post-test achievement in Chemistry. From the SDs and Standard Error of means of the control group in post-test and delayed post-test, it is also observed that

there is an increase in SD and standard error of the mean in the delayed post-test of the control group. From this analysis it can be said that teaching Chemistry through multimedia package has more positive effect in the long term retention in terms of achievement in Chemistry in comparison to traditional method. Comparing the delayed post-test means, it is found that the delayed mean achievement in Chemistry of experimental group students was higher than that of control group students. From the SDs and Standard Error of means of both the groups in post-test, it is also observed that the experimental group was more homogeneous in terms of their delayed achievement in Chemistry in comparison to their control group counterpart. The higher mean achievement in delayed post-test score of experimental group in Chemistry and less SD and standard error of mean of the experimental group in comparison to the control group, may be due to the implementation and effect of multimedia package.

MAJOR FINDINGS

1. The developed multimedia package was found to be significantly effective in terms of enhancing students' post-test achievement in Chemistry in comparison to the activity oriented method.
2. The developed multimedia package was found to be significantly effective in terms of enhancing students' delayed post-test achievement in Chemistry in comparison to the activity oriented method.

CONCLUSION

The findings of the present study have implication for using Multimedia Package in teaching Chemistry in schools for better achievement and long term retention of the Chemistry knowledge. The findings showed that the developed Multimedia Package created an interesting atmosphere where the students learnt and achieved more for both short term and long term benefits. A Chemistry teacher can use such Multimedia Packages during instructional process in the classroom and make teaching learning process more effective and interesting. With the help of the computer a teacher can also develop such kind of Multimedia Package and can use in the classroom while developing such Multimedia Package he/she can produce a number of drill exercise and can teach Chemistry by showing different functions and structures with the help of graphics, pictures and animated effect. The findings of the present study also have implications for the schools to start and utilize their computer laboratory and multimedia projector for teaching Chemistry and other subjects instead of just using the computers for teaching computer subject only.

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