

Multimedia Package For Teaching Science To Hearing Impaired Students At Secondary Schools Level

Karpagam, V.K* and Dr. J.E.MerlinSasikala**

* Ph.DResearch Scholar,**Assistant Professor,
Alagappa University College of Education, Karaikudi, TN
Email: karpagakrishnan@gmail.com.

Abstract

The present study has conducted a multimedia package for teaching science to hearing impaired students at secondary schools level. The overall samples for the present study includes 30 students of secondary were selected for the purpose of study. The sample of the study is divided into two group's experimental group and control group. The Achievement test and Multimedia package for teaching Science developed by the investigator. The result confirms that there is no significant difference between the mean achievement scores of control and experimental groups in the pre-test but there is significant difference between mean achievement scores of pre-test and the post test of the experimental group.

Key Words:Multimedia Package, Hearing Impaired Students, and Secondary Schools level.

1. Introduction

Multimedia means that computer information can be represented through audio, video and animation in additional to traditional media (Dave Marshall 2001).It is an amalgamation of varied and versatile usage such as images, animations, texts, audio and video. Multimedia emerges with different concepts and ideas which can be differentiate from media. In certain way media can be used only with basic computers displays like text or customized form like printed and hand-produced materials. Multimedia is totally different from all these notions and theories that attains a rapid growth with different multimedia packages.

1.1 Elements of Multimedia

Before going into multimedia packages it is obligatory to enhance our knowledge with various fundamental elements of multimedia. They are as follows.

Text: The text plays a vital role in multimedia and insertion of textual information is the common step for the development of multimedia software. A word, single line or a paragraph are some of the forms of textual data.

Graphics: One of the major basic elements of multimedia is graphics. The students in the class may not be able to understand the concepts and information brought out by text. But graphics helps the students to understand the concepts and ideas easily. By using images, videos and popular graphical images liked by the students, any concepts and methods can be exemplified easily. These types of learning make the students sturdy and successful in their studies. These methods can enhance the students to recall and maintain when it is add-on with pictures and graphical images.

Animation: Animation makes small changes in the screen pictures that can be displayed as moving images. Animations are basically formed by drawings. Animated pictures are used to explore the teaching process and it highlights the impact of presentation. Animated pictures, videos or graphics motivate and increase the comprehensive capacity of the students. Animations make the students listen to the subjects for a longer time and it results in better learning progress. Animated way of teaching the students reduces their learning time and increases their memory span.

Video: The video is also a vital element of multimedia. The students may not understand the subjects taught through the formats like text, diagrams or graphs. But video format can attract the students immediately and it can make them understand the intricate subject matter easily. Video is made up of a group of images converted to video frames that have minor changes giving the impression of movement.

Audio: Audio is another key element of multimedia. Audio format makes the students understand easily and the people who are weak in reading can make use of this audio element. Nugent (1982) in his research pointed out that audio has various advantages for presenting simple material for learning to young students. Sound makes the students listen and it makes the visual even more interesting. It can stimulate and maintain interest which provides a perfect feedback.

Colour: -In multimedia, colour plays a vital role that selecting a colour cautiously makes the information more attractive. Colours draw student's mind towards

significant points or information. For improved effects of use of multimedia, a reliable colour format is used for entire presentation. Colours are used constantly to stress the main points in the subject.

Screen Design: - Screen design takes a chief role in delivering the information to the learners. Multimedia developers concentrate more on this element to enhance the learners' field of interest. Mukhedee and Edmonds (1993) broaden the traditional definition of screen design to include the co-ordination of textual and graphic elements to present sequenced content in order to facilitate learning. Well-designed screen helps the learner to maximize their comprehension from the content by providing appropriate control of the learning process. Good screen design is the reason for learners to build up and retain interest in the subject matter.

2. Scope of the study

Technology has occupied most of the schools today. Commercialisation of education on the positive side has brought about this advancement in school education itself. The present study attempts to address the problems of hearing impaired students in learning and an effective instructional method of teaching science rooting on the needs and problem identification of the hearing impaired students. The designed instructional in such a way that it satisfies both individual learning and collaborative learning. The abilities and the difficulties have considered in planning and execution stage of the instructional strategy for hearing impairment students. Since sign language is fluent way of communication in these students, some basic communicative sign language was also learnt by the investigator and implemented with a trained staff for ease which helps to deliver the presentation for multimedia package. Further the study provides scope both the teachers and the learners for effective science teaching and learning through multimedia.

3. Objectives of the study

The following are the objectives of the present study

1. To find out the significant difference if any between the pre-test mean scores of the control group and the experimental group with reference to achievement.
2. To find out the significant difference between the post-tests mean scores of the control group and the experimental group with reference to achievement.

3. To find out the significant difference between the pre-test and post-tests mean scores of the control group and the experimental group with reference to achievement.

4. Hypotheses of the study

The following are the hypotheses of the study.

1. There is no significant difference between the mean achievement scores of control and experimental group in the pre-test.
2. There is no significant difference between the mean achievement scores of control and experimental group in the post test.
3. There is no significant difference between the mean achievement scores of pre-test and post-test for the experimental group.
4. There is no significant difference between the mean achievement scores of pre-test and post-test for the control group.

5. Methods and Materials

The investigators working the experimental method for the present investigation in which the single group design administered to find out multimedia package for teaching science to hearing impaired students at secondary schools level.

5.1 Sample & Sampling Techniques

The overall samples for the present study includes 30 students of secondary were selected for the purpose of study. The sample of the study is divided into two group's viz experimental group and control group. Both the groups were equal for the variables under study, the grouping were done based on their age and their marks obtained in midterm test and quarterly examination thus formed a homogenous group. Their experimental group was taught with multimedia package and the control group by the conventional method. After the treatment period effect of the programme was analysed.

5.2 Tools of the study

1. Achievement test – Pre-test and Post-test. (Developed and validated by the investigator)
2. Multimedia package for teaching Science developed by the investigator.

6. Statistical techniques

Statistical techniques such as percentage, mean, standard deviation. 't' test were used for arriving empirical findings.

Null hypothesis-1

There is no significant difference between the mean achievement scores of control and experimental group in the pre-test.

Pre test	N	Mean	SD	t	Level of Significance
Control Group	15	11.10	1.25	0.58	NS
Experimental Group	15	11.40	1.55		

* Not Significant at 0.01 level

The null hypothesis is accepted. Since the obtained 't' value is 0.58 is less than the table value 2.76 at 0.01 level. Hence there is no significant difference between the mean achievement scores of control and experimental groups in the pre-test. It indicates that both experimental and control group students are identical. To sum up the experimental and control group students do not differ in their achievement scores of pre-test.

Null hypothesis-2

There is no significant difference between the mean achievement scores of control and experimental group in the post test.

Post-test	N	Mean	SD	t	Level of Significance
Control Group	15	13.10	2.40	6.17	S
Experimental Group	15	18.30	2.21		

* Significant at 0.01 level

The null hypothesis is rejected. Since the obtained 't' value is 6.17 is greater than the table value 2.76 at 0.01 level. Hence there is significant difference between the scores of control and experimental group students in their achievement for the Post test. This shows that the multimedia package has an impact on the achievement of the experimental group. To

sum up the control and experimental group students are significantly differ in their achievement scores of post-test.

Null hypothesis-3

There is no significant difference between the mean achievement scores of pre-test and post-test for the experimental group.

Experimental	N	Mean	SD	t	Level of Significance
Pre-test	15	12.80	1.89	12.42	S
Post-test	15	20.98	1.71		

* Significant at 0.01 level

The null hypothesis is rejected. Since the obtained 't' value is 12.42 is greater than the table value 2.76 at 0.01 level. Hence there is significant difference between mean achievement scores of pre-test and the post test of the experimental group. It indicates that achievement has been improved by adopting multimedia package. To sum up there is significant difference in the pre-test and post-test mean scores of experimental group.

Null hypothesis-4

There is no significant difference between the mean achievement scores of pre-test and post-test for the control group.

Control Group	N	Mean	SD	t	Level of Significance
Pre- test	15	12.00	1.20	0.69	NS
Post-test	15	12.40	2.4		

*Not Significant at 0.01 level

The null hypothesis is accepted since the obtained 't' value is 0.69 is less than the table value 2.76 at 0.01 level. Hence there is no significant difference in the mean achievement scores of pre-test and post-test of the control group. It indicates that the traditional method of teaching learning has its own place in the educational scenario. To sum up there is no significant difference in the pre-test and post-test mean scores of control group students.

7. Educational implications

The major implications of the present study is listed below

1. The results of the study have proved multimedia package is more than the conventional method of learning science. Hence, it is recommended to utilize this technological innovation in the teaching-learning process in science at high school level if not for all the topics, at least for some of the difficult concepts for hearing impaired students.
2. Infrastructure facilities in the rural schools need to be developed definitely for hearing impaired students
3. This strategy develops the creative and innovate mind among the learners in hearing impaired students.

8. Conclusion

Multimedia emerges with different concepts and ideas which can be differentiate from media. The result shows that there is no significant difference between the mean achievement scores of control and experimental groups in the pre-test. It indicates that both experimental and control group students are identical. The result shows that there is significant difference between mean achievement scores of pre-test and the post test of the experimental group. It concluded that achievement has been improved by adopting multimedia package.

Reference

1. <https://users.cs.cf.ac.uk/dave.marshall/multimedia/node10.html>.
2. https://en.wikibooks.org/wiki/introduction_to_computer_information_systems/multimedia.
3. Mukherjee, P., &Edmonds, G. S. (1993). Screen Design: a review of research. The annual conference of the international visual literacy association, 25th, Rochester, New York, October 13-17.
4. Nugent, G. C. (1982). Pictures, audio, and print: symbolic representation and effect on learning. *ectj*, 30(3), 163-174.
5. V.K.Karpagam and Dr.J.E.MerlinSasikala "Impact of ICT Education for Hearing Impaired and its Academic Achievement", in Research Direction, UGC Approved International online Multidisciplinary Journal, Volume-4, Issue-10, April-2017, Impact Factor:2.9005(UIF), Pp:1-4, ISSN:2321-5488.

6. V.K.Karpagam and Dr.J.E.MerlinSasikala “Effect of Multimedia learning on Visual Attention and academic Achievement of Hearing Impaired Students-A Study”, in Review of Research UGC Approved International online Multidisciplinary Journal. Volume-6, Issue-8, May-2017, Impact Factor: 3.8014(UIF), Pp: 38-42, ISSN: 2249-894X.