Abstract

An effectiveness of lecture method and lecture-cum-demonstration method on the achievement of class VII Hearing Impairment children in Biological Science a Comparative study.

***Dr.Neeta Mishra**

Hearing loss occurs in a child's life, the more serious the effects on the child's development in their communication & Educational level. In the field of educational research, psychologists and educationists have been trying to introduce interdisciplinary approach for than half a century. In this sequence the investigator has made an attempt to undertake a comparative study of two methods (lecture and lecture cum demonstration) in science teaching .To find the academic level of the Hearing Impaired Children, a teacher made pre-test based on knowledge, understanding, application and skill was administered as tools to collect data. After teaching them, post-test was applied on both the groups which was also prepared on the basis of teaching learning objectives. The means, SD and't' values of correlated and uncorrelated means was analyzed after the compilation of the data. It shows that the lecture cum demonstration method emerged as an effective method to develop better abilities to development of their education of the Hearing Impaired Children.

***Dr.Neeta Mishra**:-Assistant Professor,School Of Education,Uttar Pradesh Rajarshi Tandon Open University,Prayagraj.

Introduction

Education has been described as the best legacy a country can give to her citizens. Obani (2006) observed that education improves the development of any society, and the youths who occupy significant positions in that country should be properly educated in order to improve the society. Therefore, schools at various levels are expected to educate future leaders and develop the high level capacities needed for economic growth and development. Igbuzor (2006) while stressing the importance of education noted that education is a human right that should be accorded to all human beings solely by reasons of being human. The right to education is universal to all including those with hearing impairment. Hearing provides a basis for almost all kinds of learning. From the time a child is born, he/she is at least, after some weeks expected to respond to sound stimuli. This becomes possible if one's auditory systems are perfectly developed. Right at a tender age, students with good auditory

perception are able to respond to voices of parents as well as identify them using auditory discrimination (Ejim, 2015). According to Agomoh and Kanu (2011) Ability to communicate and interact in one's environment largely depends on hearing. Loss of hearing ability, if occurs before or after birth can create difficulties in the person's communication, adjustment and learning. Students with hearing impairment have at one point or the other in their lives, lost the ability to perceive sounds and use oral language for the purpose of communication. Hearing impairment covers all forms of hearing problems that impedes communication. It could be mild or severe. So, persons with hearing impairment are people who have mild or severe hearing problems to the extent that communication is affected. Citing the definition of the Committee of Nomenclature of the Conference of Executives of American Schools for the Deaf, Abebe (2008) defined persons with hearing impairment as those in whom the sense of hearing is non-functional for the ordinary purpose of life or those of whom impute sound is meaningless for communicational purpose. According to Baker (2006), hearing loss has a continual impact on daily learning experience.

For many children, some form of special education services is required in order for the child who is hearing impaired to received and appropriate education. Due to lack of auditory system the hearing impaired children facing too much problem in their education, they mostly faced problem in teaching Science and Mathematics classes.

Science education accompanies a very eminent place in the curriculum, both at school and university stages of education in India. Continuous advances in scientific and technological research have lead to the growth and greater application of science in contemporary society. Kothari Commission (1966) has very rightly remarked the following in their recommendation:

"Science and Mathematics should be taught on a compulsory basis to all pupils as a part of general education during the first ten years of schooling."

During the last three decade, many new methods of teaching and training have been developed, tested and modified for different kind of learning situation. In order to meet continuing need of updating methods with technological development, obsolete methods need replacement with the new, innovative and effective method. There are various methods and strategies of teaching biological sciences are utilized in our educational system. To make teaching interesting for the benefit of students it is very important; the selection and employment of a good and appropriate teaching method keeping in mind the nature and content of the subject matter. For a science teacher it is a very challenging task to stimulate hearing impaired children critical awareness, understanding of subject matter and observation power. From the review of related literature it is clearly evident that the other modern methods of teaching have been evolved as a better alternate to the traditional teaching style or the lecture method. So, by carrying out this study an effort was made by the investigator to provide information that can be of great help in understanding learning and implementation aspect of the teaching strategy under observation (Lecture-cum-demonstration) and its comparative effectiveness

with the traditional method (Lecture Method).some studies supporting to the better academic achievement by using teaching strategy other than traditional method are as follows:

H. Dean Johnson, Dasgupta Niranjana (2005) conducted a study on traditional versus Non-traditional Teaching: Perspectives of Students in Introductory Statistics Classes. Survey was done in order to identify the preferences in the teaching style. The data was analyzed to see if there has been an increasing trend in preference towards nontraditional methods. The results were inconclusive about such a trend. But most of the students preferred non-traditional classes as compared to traditional classes. The learning styles of the students, the attitudes of students towards the use of visual aids and hands-on activities were all significantly related to the teaching style preferred by the students.

Reime MH, Harris A, Aksnes J, Mikkelsen J (2008) conducted a study on most successful method in teaching nursing students infection control – E-learning or lecture. The students were given the learning goals for the course and then divided into two groups: one group was administered e-learning program, and the other group had a three hour long lecture. After this a post test was done. The students were satisfied with both teaching approaches. It is important that the students are competent in information, communication technology because they will need to use this tool in their clinical practice. In addition, a degree level course needs to use many different teaching methods to achieve goals related to in-depth and superficial learning.

From the review of different studies it is clearly it is evident that in almost all these researches, approach of model of teaching and other innovative method of teaching have been found to be superior to the traditional methods. It is evident that the other modern methods of teaching have been evolved as a better alternative to the traditional style of teaching. So by carrying out this study an effort had been made by the investigator to provide information, which can be great importance and help in understanding, learning and implementation aspect of teaching-strategy under observation (Lecture –Cum –Demonstration) and its comparative effectiveness with the lecture method.

Objectives

1. To study the effect of lecture method (traditional method) of teaching on Hearing Impaired children achievement in Biological Science.
2. To study the effect of lecture-cum-demonstration method of teaching on Hearing Impaired children achievement in Biological Science.
3. To find the comparative effectiveness of teaching through lecture method and lecture-cum-demonstration method in relation to pupils' achievement in Biological science.

Hypotheses

1. Lecture method is less effective method of teaching Biological science.
2. Lecture –cum-Demonstration method is more effective method of teaching Biological science.
3. There is a significant difference on achievement of students in Biological science, in teaching through lecture method and lecture-cum –demonstration method.

Methodology

Experimental method was used to conduct the study.Pre-test, post-test, control group and experimental group design was used for the study.

Sample

The sample of the present study was consisted of 30 students of Biology studying in class VII of Bimal Chandra Ghose School for Deaf, Varanasi, Uttar Pradesh. The purposive sample consisted of two intact sections (VIIA and VIIB) of class VII Hearing Impaired students. Class VIIA was termed as experimental group and VIIB termed as control group. The two groups were as similar as the availability permitted; they were natural and highly comparable in respect of size, average age and especially in their past achievement in science. Thus, the two experimental groups were comparable within proximity on experimental measures at pre-experimental stage.

Tools

As per objectives of the study, to measure the subjects during pretest and post test the tool used for collecting data was a standardized Biology Achievement Test (BAT) constructed by Ananya Singh & Prof. Dhananjai Yadav (2018) was used.

Analysis of Data

In order to find out the individual effectiveness as well as the relative effectiveness of the lecture method and lecture-cum-demonstration method, pre-test post-test scores of students in Biology Achievement Test were taken into consideration. As these two groups did not differ significantly on pre-test stage, they could directly compared using‘t’-test.Two tailed test was applied. The analysis of data can be studied under different sections as given below.

(A) Comparison of Means of Pre-test Scores of Students of Experimental and Control Groups in Biology Achievement Test.

Table-1

Significance of Difference of Means of Pre-test Scores of Hearing Impaired children of Experimental and Control Groups in Biology Achievement Test

GROUP	N	M	SD	t-Value
EXPERIMENTAL	15	25.84	5.78	
CONTROL	15	25.68	5.62	0.09

*at.05 level=2.00, ** at .01 level=2.66

In table-1 the mean, standard deviation and ‘t’ values have been shown for the scores of the students in Biological achievement test at pre-test stage for both the groups i.e. experimental and control. The calculated’ value is 0.09, which is less than the table value at .05 level and .01 level i.e.2.00 and 2.66

respectively. Hence the test is insignificant at both the levels. So these two groups can be treated as similar groups as the mean score of experimental group does not differ significantly from that of control group.

(B) Comparison Of Means of Post-test Scores of Experimental and Control Groups in Biology Achievement Test.

Table-2

Significance of Difference of Means of Post-Test Scores of Hearing Impaired children of Experimental and Control Groups in Biology Achievement Test

GROUP	N	M	SD	t-Value
EXPERIMENTAL	15	42.68	6.18	
CONTROL	15	28.53	5.64	14.15

*at.05 level=2.00, ** at .01 level=2.66

In table-2 the mean, standard deviation and‘t’ value have been shown for experimental and control group at post-test stage. As it may be observed from the table no 4.2 that the‘t’ value 14.15, of difference in mean scores at post-test stage of hearing Impaired children in experimental and control group in Biology achievement test is significant at both the levels i.e. .05 and .01. The mean score of experimental group differs from the control group significantly. This shows that the achievement shown by both the groups at post-test stage is different.

(C) Comparison of Mean Gains of the Experimental and Control Group of Hearing Impaired Children in Biology Achievement Test

Table-3

Significance of Difference of Mean Gains of Hearing Impaired Children of the Experimental and Control Groups in Biology Achievement Test

GROUP	N	M	SD	t-Value
EXPERIMENTAL	15	16.84	6.3	
CONTROL	15	2.84	1.3	12.38

*at.05 level=2.00, ** at .01 level=2.66

In table-3 mean,SD of gains of experimental and control group in pre-test and post-test have been shown Significant differences in the mean scores of gain in pre-test for experimental and control group was observed. It may be observed from the table-3 that‘t’-value 12.38 of differences in mean scores of students gain before and after the treatment in experimental and control group In Biological Achievement test is significant at 0.05 and 0.01 levels. The mean score of gain of experimental group is fairly high than the mean score of gain of control group. This shown that the achievement shown by both the groups before and after the treatment is

different with experimental group showing a remarkable higher level of performance after the treatment. I.e. teaching by lecture-cum-demonstration method.

Thus, from all of the above we can conclude regarding the hypotheses which were framed at the starting of the study as follows:

H1: Lecture method is less effective method of Biological Science is accepted.

H2: Lecture-cum –demonstration method is more effective method of teaching Biological science is accepted.

H3: There is a significant difference on achievement of students in Biological Science in Teaching through, lecture method and lecture-cum-demonstration method is accepted.

Conclusion

Hearing impaired children suffering from auditory problem so the lecture method is not sufficient him for their teaching but when we used lecture-cum demonstration method from their teaching-learning process these are effective for them. The result of current study i.e. An effectiveness of lecture method and lecture-cum-demonstration method on the achievement of class VII Hearing Impairment children in Biological Science a Comparative study are very interesting. The experimental and control groups did not differ significantly in terms of levels of achievement in science at pre-test stage. But after the treatment the mean scores of experimental group was significantly higher than the control group. Also the difference in mean gain scores of experimental and control group on achievement was noteworthy. The mean gain scores of students in experimental group were significantly higher than the score of hearing impairment children in control group. Hence these gains can be considered due to treatment provided to the experimental group.

The difference in achievement of experimental and control groups reflects the effectiveness of treatment. The experimental group was provided higher form of instruction than the control group in form of lecture-cum-demonstration method, while the instructions given to control group were through the lecture method of teaching.

Here it is obvious from the above discussion that teaching through lecture-cum-demonstration method brings higher achievement as compared to the lecture method of teaching. In other words the teaching through lecture-cum-demonstration method can be a better method of imparting and transmitting knowledge to the Hearing Impaired Children in comparisons to the traditional, i.e. Lecture method in Biological Science.

A very significant difference in the mean scores of gain in pre-test and post-test for experimental and control group was observed. The mean gain of experimental group was fairly high than the mean gain

scores of control group after the treatment of post-test stage. This shows that the achievement shown by both the groups before and after the treatment is different with experimental group showing a remarkable higher level of performance after the treatment, i.e. teaching by lecture –cum-demonstration method. So, the findings suggested that Lecture method is less effective method of teaching Biological science and lecture-cum-demonstration method is more effective method of teaching Biological Science for Hearing Impaired Children.

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