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EFFECTIVENESS OF DIGITALIZED TEACHING LEARNING MATERIAL AT UPPER PRIMARY LEVEL IN SCIENCE TEACHING

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ABSTRACT

The teacher of today is considered as a creator and manager of a stimulating classroom by the use of the audio-visual aids. In science teaching the materials are to be so structured that they are readily grasped by learners. Students must be encouraged to explore, to ask questions and actively participate in learning and get involved in the process of classroom teaching. These can be achieved only by the use of appropriate audio-visual aids in classroom situations and providing the student a chance to tackle the various things at his own. The objectives of the study depend on the frame work of the problem. The problem attempts to find out the effectiveness of teaching aids used in science teaching as compared to the traditional method (Usual Chalk and talk method). It indicates that students taught with the use of teaching aids were able to understand the taught content more clearly.

KEYWORDS : *Digitalized Teaching Learning Material, Teaching Aids, Science Teaching, Traditional methods.*

INTRODUCTON

Most of the students are afraid of science and they don't want to study science. Since, Science is a very interesting subject, such on attitude of students towards science shows that the methods of science teaching being used in schools has made science subject a burden. This condition raises many questions with itself. Whether our method of teaching science is not appropriate or our teachers fail to make teaching of science interesting. The teaching of science can be made more interesting and vivid. This can be achieved by making students familiar with the various activity based on interactive methods of science teaching. The teacher should take the advantage of the natural endowment and should bring the child in to active contact with the outside world. The teacher of today is considered as a creator and manager of a stimulating classroom by the use of the audio-visual aids. In science teaching the materials are to be so structured that they are readily grasped by learners. Students must be encouraged to explore, to ask questions and actively participate in learning and get involved in the

process of classroom teaching. These can be achieved only by the use of appropriate audio-visual aids in classroom situations and providing the student a chance to tackle the various things at his own.

REVIEW OF RELATED LITERATURE-

Commenting on the use of audio-visual aids, the Kothari Commission 1964-66 observed that "it should indeed bring about the 'educational revolution' in the country. It further stated that the supply of teaching aids to every school is essential for the improvement of the quality of teaching". The National Policy on Education, (1986) and Plan of Action modified (1992), have laid a great stress on the use of teaching aids, especially improvised aids, to make the teaching and learning more effective and realistic.

In the words of Edgar Dale (1964) "Because Audio-Visual materials supply concrete basis for conceptual thinking, they give rise to meaningful concepts enriched by meaningful association, hence they offer the best antidote for the disease of verbalism".

Thus, from the above discussion it is clear that the use of teaching aids makes the classroom teaching more interesting and learning goals can be achieved easily.

OBJECTIVES OF THE STUDY-

The objectives of the study depend on the frame work of the problem. The problem attempts to find out the effectiveness of teaching aids used in science teaching as compared to the traditional method (Usual Chalk and talk method).

1. To Find out the relative effectiveness of the two methods of teaching viz. teaching through the use of teaching aids and teaching without any use of teaching aids i.e. through traditional method in science teaching to the students of VIII class.
2. To study the relative effectiveness of two teaching methods in relation to sex of the students of Class VIII.
3. To assess the impact of two methods used for teaching science and their effectiveness in relation to different boards of Examination i.e. C.B.S.E. Board, U.P. Board and I.C.S.E. Board.
4. To Know the impact of various teaching aids in science teaching.

DELIMITATION OF THE STUDY-

The study is delimited with Geographically, it is delimited to Gautama Buddha Nagar city only. The students of English medium schools of VIII standard affiliated to three Examination Boards i.e. C.B.S.E, UP and I.C.S.E. Only two topics ' Environment pollution' and 'Chemical reaction' have been chosen to Teaching science. Two groups comprised of Students taught with or without teaching aids.

HYPOTHESIS-

- There is no significant difference in the achievement of C.B.S.E. Board students taught with teaching aids (experiment group) and without teaching aids (control group).
- There is no significant difference in the achievement of boys and girls of C.B.S.E. Board students taught with teaching aids (experiment group) and without teaching aids (control group).
- There is no significant difference in the achievement of U.P. Board students taught with teaching aids (experiment group) and without teaching aids (control group).
- There is no significant difference in the achievement of boys and girls of U.P. Board Students taught with teaching aids (experiment group) and without teaching aids (control Group).
- There is no significant difference in the achievement of I.C.S.E. Board students taught with teaching aids (experiment group) and without teaching aids (control group).
- There is no significant difference in the achievement of boys and girls of I.C.S.E. Board students taught with teaching aids (experiment group) and without teaching aids (control group).

METHOD OF STUDY-

The purpose of the present study was to reveal the effectiveness of teaching aids used in science teaching in relation to the traditional method of chalk and talk. Since it involves conduct of an experiment therefore the experimental method with Two Group Randomized subjects, Post- test only Design has been used.

Sample-

All the students of VIII standard were included in the sample of the study. The age group of these students was 11-14 years and all of them were able to understand the instruction provided to them. The group intelligence test (Standardized by Dr. (Mrs.) Pramila Ahuja) was administered on the student's sample only to make two equivalent groups. Matched group technique was applied to form two equivalent groups. In this process some students from both the groups were deleted due to very high or less score in the intelligence test. 340 students were selected as sample from various schools of Gautama Buddha Nagar (UP).

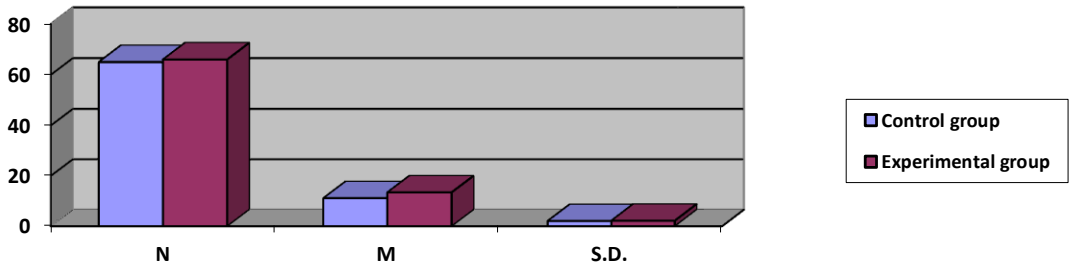
Research Tools-

Self-Made Achievement test Prepared by Researcher to administer in Present Study.

Statistical Techniques- The Researcher uses Mean, Standard Deviation and t test in this Present study.

Analysis and interpretation of data-

Testing of Hypothesis -1



In above graph, mean and S.D. of control group is shown as 11.47 and 2.07 respectively whereas of the experimental group, the values are given as 13.43 and 2.17 respectively. The calculated 't' value (t = 5.45, p = 0.01) was highly significant. It indicates that students taught with the use of teaching aids were able to understand the taught content more clearly. Therefore, the gain in achievement score of experimental groups was higher than their counterparts who were taught without teaching aids.

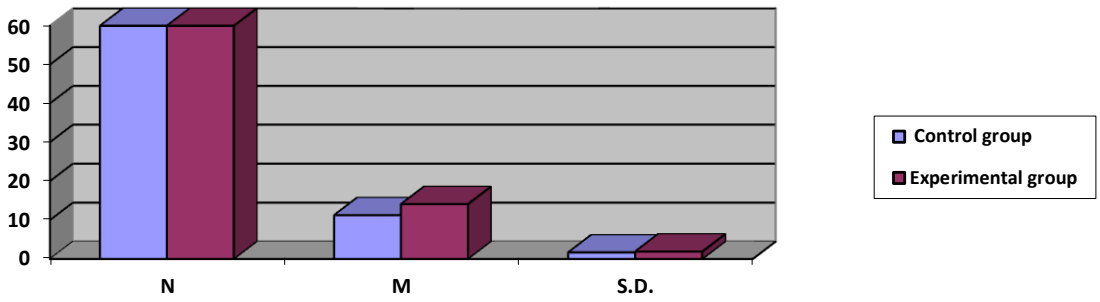
Testing of hypothesis -2

Subjects	Boys			Girls				Significant
	N	M	S.D.	N	M	S.D.	't'-value	
Control group	40	11.17	2.28	25	11.08	1.70	1.80	No significant
Experimental group	42	13.28	2.11	24	13.15	2.45	0.69	No significant

On varying the sex and controlling the method of instruction, the data shown in table 3 revealed that mean of scores on achievement test scored by boys and girls of the control group (taught without any teaching aids) were 11.17 and 11.08 respectively. On comparing these mean values no remarkable

difference was yielded (t = 1.80, N.S.). Similar findings were obtained for the boys and girls of experimental group (taught with teaching aids). The difference in their mean value (t = 0.69, N.S.) was found insignificant. Thus, table concludes that there is no significant variation in the achievement of boys and girls when taught either without the teaching aids or with the teaching aids.

Testing of Hypothesis-3



In graph the mean achievement scores of control group and experimental group are given as 11.25 and 14.09 respectively. The difference in mean value was found significant (t=8.61, p =0.01). It concludes that teaching with the use of teaching aids is effective in science teaching. Use of teaching aids develops interest among the students and they are able to understand the subject matter quite easily.

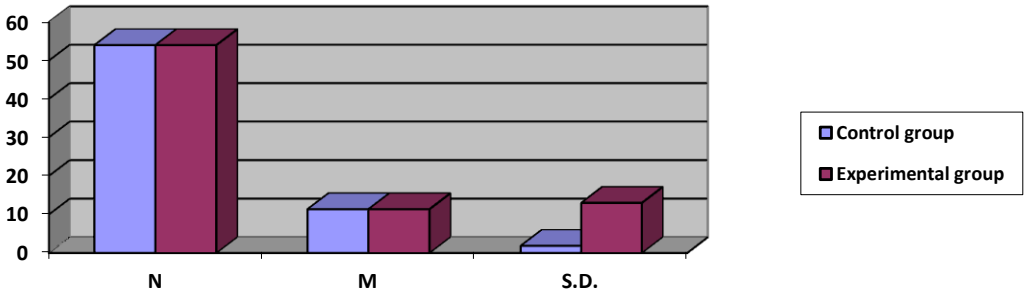
Testing of Hypothesis-4

Table

Subjects	Control group			Experimental group			
	N	M	S.D.	N	M	S.D.	't'-value
Boys	43	10.69	1.69	45	13.84	1.73	7.87Significant
Girls	17	11.47	1.68	16	13.62	1.31	4.08 Significant

It is evident from the data presented above in table that there is a significant difference in the mean score of boys of control group and experimental groups on achievement test (t=7.87, p=0.01). In case of girls of control group and experimental group, significant difference in their mean scores (t=4.08, p=0.01) were obtained. On comparing the boys or girls of control group and experimental group significant variation in their mean score on using teaching aids in teaching science was found. This infers that the use of teaching aids has influenced the level of achievement of boys as well as girls.

Testing of hypothesis-5



It is clear that mean of scores on achievement test obtained by controlled group students and experimental group students are 11.37 and 13 respectively. The difference in the mean scores between

these two groups was significant (t=4.79, p=0.01). This shows that use of teaching aids helps the students to understand the concept clearly, when compared to the students taught without the use of teaching aids. Thus, we can say that use of teaching aids is effective in science teaching.

Testing Hypothesis-6

Table

Subjects	Control group			Experimental group			
	N	M	S.D.	N	M	S.D.	't'
Boys	39	11.34	2.06	39	12.57	1.94	2.71Significant
Girls	15	10.86	1.40	14	12.72	1.80	2.98 Significant

In table, mean of achievement test scored by boys of control and experimental group were shown as 11.34 and 12.57 respectively. The 't' value (t=2.71, p=0.01) was significant. Similar findings were obtained in case of girls of control and experimental group where significant difference in mean value was found (t=2.98, p=0.01). Being a novice idea of giving instruction with the use of teaching aids it more effectively accepted by the boys and girls of experimental group and hence they had scored higher mean values than their counterparts who were taught without the use of teaching aids. It confirms that the achievement of both boys and girls are better when they are taught by using teaching aids.

Educational Implications-

- The teachers may be motivated to use teaching aids in their classroom teaching, so that their students may take interest in the teaching learning process.
- Most of the students do not want to study science, as they consider science to be a difficult subject. This negative attitude of students towards science can be modified by providing students a conductive environment in which they are free to interact with the various activities of science.
- Students having low achievement in science can be helped to improve their achievement by teaching them the various concepts of science with the help of simple teaching aids.
- Teachers can be motivated to use teaching aids because with the help of teaching aids, teacher can explosion the subject matter more easily and effectively to the students, without much efforts.
- Students can be motivated to prepare and use their own hand made teaching aids.
- Generally, it is believed that girls are not capable of studying subjects like science and mathematics. This belief should be changed as girls can also perform as better as boys, if they are provided proper opportunity.

REFERENCES-

- Acheson, K. (1964) "The effects of feedback from television recording and three types of supervisory treatment on selected teacher behavior. "Unpublished doctoral dissertation, Stanford University, 1964.
- Allen, D.W. & Fortune, J.C.an analysis of microteaching, a new procedure in teacher education. in microteaching- a description. Stanford California School of Education Stanford University, Section 3, P.P.
- Bhattacharya, R.P. (1974) "Microteaching in the training of Polytechnique teachers", unpublished Doctoral dissertation, MS University of Baroda, 1974.
- Buch, M.B. (1974) A Survey of Research and Education, Baroda, Case, M.S. University of Baroda, 1974.
- Buch, M.B. (1981) A Survey of Research and Education, Baroda, Case, M.S. University of Baroda, 1981.

- Buch, M.B. & Yadav M.S. (1974) Educational Research in the India survey of Research in Education, CASE, M.S. University of Baroda, 1974.
- Chudasama, R.R. (1971) "Trying out of microteaching procedure in student teaching". Unpublished M.Ed. Dissertation, M.S. University, 1971.
- Claus, K.E. (1969) "Effects of modeling and feedback treatment on the development of teachers questioning skills", technical report no. 6, Stanford Centre for Research and Development in Teaching School of Education, Stanford University, 1969.
- Ryan, K.A. (1969) Microteaching, Reading, Mass Addison Wesley, 1969.
- Guilford, J.T. fundamental Statistics in Psychology and Education, New York, McGraw Hill Book and Co..,
- Clift, J.C (1976) Structure of the skill acquisition phase of a microteaching programme. Br. J. Educational psychology, 46, pp. 190-197, 1976.
- Dosajh, N.L. (1975) "Microteaching", report of the All India Summer School in Methodology of Teaching and Training, Technical Teacher Training Institute, Chandigarh, 1975.
- Flanders, N.A. (1967) Intent Action and Feedback: A preparation for teachers in Amiddon, E.J. and though, J.B., interaction analysis, Research, Theory and application, Boston, Addison Wesley, 1967.
- Gage, N.L. (1953) 'Handbook of research on teaching', Chicago, Illinois, Rand Mc. Nally and co., 1953.
- Kerlinger, Fred, N. (1978) Foundations of behavioral Research, Holt, Renehart and Winston, Inc. U.S.A., 1978
- Passi, B.K. (1976) "Becoming better teacher (Microteaching approach) Centre of Advance Study in Education, M.S. University of Baroda, 1976
- Singh, L.P. (1973) "Classroom interaction analysis, microteaching and modification of classroom teacher behavior", unpublished doctoral dissertation, M.S. University, 1973