

ROLE OF A.V AIDS ON THE COGNITION OF STUDENTS AT SECONDARY LEVEL

Shala Gul¹, Dr. Almas Kiyani², Muhammad Asif Chuadhry³, and Sumaira Liaqut³

¹M.Phil Education, Student Arid Agricultural University, Pakistan

²Assistant Professor, Arid Agricultural University Rawalpindi, Pakistan

³PhD scholar, AIOU, Islamabad, Pakistan

Copyright © 2014 ISSR Journals. This is an open access article distributed under the *Creative Commons Attribution License*, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT: Audio-Visual aids are those aids, which assist the teaching process, by which teaching and learning both process become attractive, interesting and sophisticated. It solves the teaching problems which occur during teaching. This experimental study is designed to investigate the role of A.V aids on the cognition of students at secondary level. The objective of this study was to find out the use of A.V aids in teaching of Pakistan studies at secondary level and to find out the effect of A.V aids on the cognition of students. The population of the study was comprised of all the Govt Girls secondary schools. For the present study Govt M.C. Girl's secondary school was selected through purposive sampling. Quasi-experimental research design was adopted for the study intact classes were taken in this experiment. The instruments of this study were an inventory of A.V. aids and also developed an achievement test. The test reliability was found 0.75. The experimental group was taught by using technical audio- visual aids while the control group was taught by the traditional method. The results of pre and post test scores were calculated and analyzed through statistical tools and percentage was used for analysis of inventory responses. The mean achievement scores of student from experimental group was significantly higher than the control group It was therefore recommended that Pakistan studies teachers should use the audio-visual-aids to teach to teach students at 9th class. The findings of the study will provide useful knowledge for educators and teachers to improve their teaching methods. The results of this study might stimulate further research.

KEYWORDS: Audio-Visual Aids, Cognition, Traditional Method, Student.

INTRODUCTION

Education is a lifelong process. It is planned deliberated and transmitted to from generation to generation. It is termed as knowledge as a cognizant component. In a formal school system it's imported through a vigorous course of curriculum which is hub of an educational system. In cyclic process curriculum covers a set of prescribed courses. Their integrated objectives, material and methods, tools of teaching and assessment. Through the variety of courses. The teachers develop the cognitive component of learning. All courses develop cognition which is the forefront of learning. Within this framework, thus this study examines how Pakistan studies occupies the central position of citizenship development and to what extend the role of teaching aids enhance the cognitive domain of learning the concepts , the events , facts and perceptions which a degree of comprehension, retention , and assimilation.

Today the world is passing through rapid changes. In such a world, education cannot resist changes. Audio visual materials are produced, distributed and used as planned components of educational programs. It helps the process of learning. It provides significant gains in thinking and reasoning. Recent technological developments have opened many new possibilities for learning. All teaching can be greatly improved by use of visual aids because it can help make the learning experience impressive. The visual aid materials can promote the effective kind of learning experience impressive.

The teacher of Pakistan studies is required to be aware of the need, importance, nature and scope of such instructional aids and the skill to utilize them effectively in teaching. Teaching aids are helpful for understanding. It is impossible to make suitable use of such aids in every classroom because most of the schools suffer budget constraints and as the fact is clear i.e. audio-visual aids are expensive; The subject of Pakistan studies course is divided into two parts currently students study this subject from 9th class. Before 2013 Pakistan studies was taught in 10th class but now the strategy has changed. These processes include thinking, knowing, remembering, judging, and problem-solving. These are higher-level functions of the brain and encompass language, attention, perception, and planning. Cognition, or cognitive processes, can be natural or artificial, conscious or unconscious. The idea can be transferred rapidly to a large number of people through the use of visual aids it is becoming more and more important. Visual aids offers the extension workers a unique opportunity to contact mass people. They enable learners to contact mass people. (Malik, 2012)

Kochhar (2004) Audio-visual aids make a lesson or a lecture more interesting and a memorable experience not only for students but for teachers as well. They play a vibrant role in focusing the attention of individual student towards the teacher or the topic. Human beings' five senses are the doorway for effective learning, especially seeing, hearing and touching bring maximum knowledge for the individual. Cognition means thinking, gaining knowledge and dealing with knowledge. It may be related to the mental processes The lower level of cognition are Knowledge and comprehension and remaining four level of cognitive domains were considered higher level of cognition

REVIEW OF LITERATURE

In 1946 Edgar Dale took the same construct and developed the Cone of Experiences, we start from the learner as participant in the actual experience, then move to the learner as observer of the actual event, to the learner as observer of a mediated event and finally to the learner observing symbols that represent an event. Dale contended that learner could make profitable use of more abstract instructional activities to the extent that they had built up a stock of more concrete experiences to give meaning to the more abstract representations of reality. The concept of cone of experiences was first introduced in this book "Audio visual methods in teaching."

Flawell 1985 has explained the concept of cognition, as originated by its founder, genetic epistemologist as how the knowledge begins and develops in individual and how thinking and reasoning abilities developed in the human mind. Piaget's work is widely recognized a true counts; his stages of cognitive development and his process of cognitive functioning. His four stages include sensorimotor (0-2), preoperational(2-7), concrete operational(7-11) and formal operational (12-15). It is the formal stage. The study focuses on Piaget's process in three four interactive disequilibrium, variations between individual's views and current world views assimilations filling up in the individual of new experiences into existing world views and accommodations changing the scheme and worldviews to interoperate new experiences. The modern teaching psychologist Ormrod 1994 summarized the Piaget's basic assumptions about child cognitive development in the following seven ways.

- i. Children are active and motivated learners.
- ii. Their knowledge of the world becomes more integrated and organized over time.
- iii. Children learn through the process of assimilation and accommodation.
- iv. Cognitive development depends on interaction with one's physical and social environment.
- v. The process of equilibrations (resolving disequilibrium) helps to develop increasingly complex level of thought.
- vi. Cognitive development can occur only after certain genetically controlled neurological changes occur.
- vii. Cognitive development occurs in four qualitative different stages

OBJECTIVES OF THE STUDY

Following are the major objectives of the study:

1. To find out the use of A.V. aids at secondary level
2. To explore the effect of A.V. aids on the cognition of students

HYPOTHESES

Following directional hypothesis will be formulated after reviewing the literature:

RESEARCH HYPOTHESES

H₁: The mean scores of students who were taught through A.V. aids are significantly higher than those students who were taught through traditional method. **H₁**: $\mu_E > \mu_C$

NULL HYPOTHESIS

H₀: The mean scores of students who were taught through A.V. aids are not significantly higher than those students who were thought the traditional method. **H₁**: $\mu_E > \mu_C$

SIGNIFICANCE OF THE STUDY

This study will be significant because A.V. aids will be used as a tool by the teachers to improve their teaching practices. It will examine the ways of teaching and learning processes and how they will be more effective through using A.V. aids .The findings of this study will be helpful for teachers to understand those elements that can be considered to improve the teaching/learning process and will ultimately make them an effective teacher. By using A.V. aids teachers will be able to restructure their teaching strategies to meet the needs of students.

DESIGN OF THE STUDY

Design

Quasi-experimental research design was adopted for the study. Specifically, the study used non-randomized pretest-posttest group design. Quasi-experimental design was used because intact classes were used instead of randomly composed samples (Oladejo, Olosunde, Ojebisi, & Isola, 2011; Osokoya, 2007; Owusu, Money, Appiah, & Wilmot, 2010). The diagrammatic representation of the design is shown below:

O ₁ X ₁ O ₂	Experimental group
O ₃ X ₂ O ₄	Control group

Where

- O₁ and O₃ represent pretest
- O₂ and O₄ represent posttest
- X₁ represents treatment (audio-visual aided instruction)
- X₂ represents treatment (traditional method)

Population

The totality of under considerations elements are called population therefore, students studying at Secondary level constituted the population of study. All the secondary schools of district Rawalpindi will be the population of this study and all the 9th grade enrolled students were considered the target population of this study. The head teachers, SST, and Subjects Specialist were included in the population.

Sample and Sampling Technique

Govt .M.C. Girls High School Rawalpindi was selected through purposive sampling. The intact classes were taken for experiment. There were 90 students from 9th class were considered as a sample. The participants were selected from that school which represents population of typical government schools in Pakistan i.e. The experimental and control group have equal strengths.

RESEARCH INSTRUMENT

The data was collected from the instruments to meet the objectives of the study therefore an inventory of A.V. aids and achievement test was developed.

Inventory of A.V. aids

The researcher developed an inventory list about A.V. aids for measuring the teacher's opinions about the use and utilization of A.V. aids in Pakistan studies subject. It consisted of 17 items. The researcher was administered this inventory on secondary school teachers, subject teachers, subject specialist and headmistress.

Achievement Test

The researcher was developed an achievement test of Pakistan studies. The test was consisted of 50 MCQs. It was prepared from the Pakistan studies text book. It was developed from the three chapters of Pakistan studies. The test was administered on experimental and control group. The pre-test was administered before the experiment and post-test was applied after the treatment. The pre-test and posttest was same.

The instruments use in present study were tried out and tested on the additional samples in order to collect evidence about their validity and reliability. Validity was established by careful analysis of test specifications and consultations with teachers and other experts. Kuder-Richardson 21 reliability coefficient was used to establish the reliability of the instrument since items were scored dichotomously (correct/incorrect). The reliability of test was 0.75. The reliability and validity coefficient obtained was positive. Further improvements could be made in preparing more valid and reliable instructions. However, no experiment could be perfectly reliable

Difficulty Level (DL)

"It is also called item facility which means a measure of the ease of a test item: item difficulty has to do with how easy or difficult an item is from the view point of the group of students or examinees taking the test of which that item is a part" the difficulty level of the fifty test items ranges from 0.52 to 0.70. The test items difficulty was measured 0.6736.

The following formula has been used for estimating the difficulty level of each item:

$$DL = \frac{HC + LC}{N}$$

Discrimination Power (DP)

It means a measure of the extent to which a test item is sensitive to differences in ability among those who take the test. A suitable procedure for calculating discrimination power is to compare the responses of test takers ranking in the upper 27 and the lower 27 of the sample on the basis of the total test score.

To find the discrimination power of each item, the following formula is used.

$$DP = \frac{RU - RL}{1/2 T}$$

DP of an item is 0.30 and above, the item is acceptable. If the item discriminatory index is less than 0.30, the item is a weak and needs to be modified or changed. The results obtained after the application of the formula of the item DP range between 0.30 and 0.80. All the items were acceptable because the discrimination power is 0.5148.

Process

The first step of this experimental study was to select the school, so the researcher met the headmistress of M.C. school in Nov, 2013. After permission researcher met the class teachers from 9th class. The researcher observed the resources of the school and also got the information about the availability and utilization of A.V. aids in this school. The class teachers were provide the list of 9th class. The two sections were taken as it is because it was not allowed that she select participants randomly as experimental and control group. Quarcoo-Nelson (2012) had used this quasi experimental design in his study. This present study was also based on quasi experimental study. The groups were assigned as Section A was considered experimental group or other remaining section B was considered as control group. The strength was equal in both groups therefore 45 students were in each section. Achievement test was applied before the treatment on both groups. The purpose of pretest was to know the understanding level of students. Both groups' were almost equal. The pretest scores in ordered form. It was found that both groups were same. The experimental group was taught with teaching aids while the control group was taught through conventional teaching. All conditions were equal for both groups and also try to provide the same facilities as similar as possible. The researcher taught both groups because there were no volunteer was available for teaching. The experimental and control groups were exposed to all other learning conditions and facilities as similarly as possible. The experiment limited to six weeks. She applied two different treatments on groups and the lesson plans were also used in teaching but the experimental group .was taught through the A.V. aids. The researcher was taught both groups daily

under the similar environmental conditions. The duration of treatment was six weeks. The post test was conducted after the treatment.

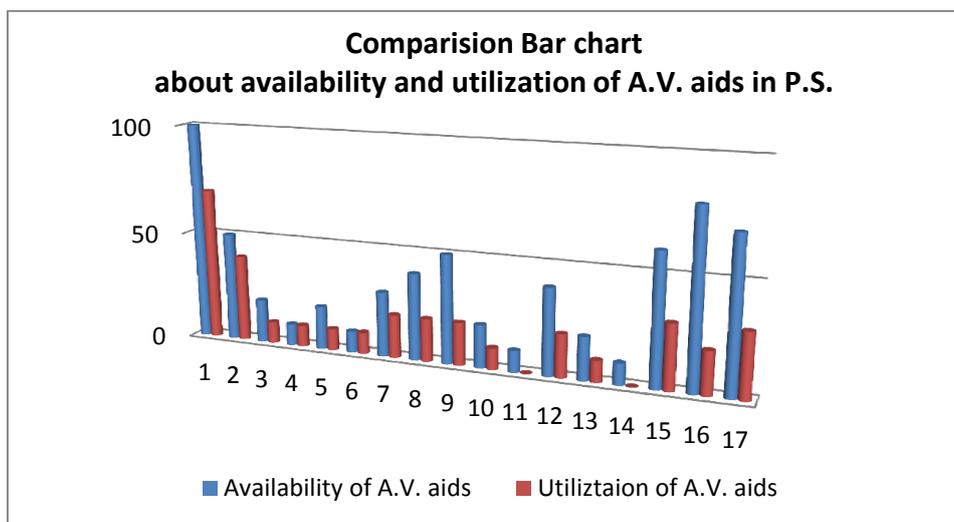
DATA ANALYSIS

Inferential statistics were conducted to analyze the data obtained from the study. Specifically, null hypothesis one was tested at $p \leq 0.05$ significance level using t-test. The pretest achievement score was used as covariate. Null hypothesis two was tested using independent samples t-test. The researcher developed an inventory list to achieve the first objective of this study. The sample was drawn from the population. The sample distribution.50% sample was drawn from the school heads, 20% from SS (Pakistan studies), 20% from class teachers and 10% was taken from the colleges(Lecturer Pakistan studies).

Table 1. List of the Responses

Serial #	Teaching Aids	Available	Utilization
1	Chalk board	100%	70%
2	Bulletin board	50%	40%
3	Flannel board	20%	10%
4	Documentary /films	10%	10%
5	Graphs	20%	10%
6	Still pictures	10%	10%
7	Posters	30%	20%
8	Models	40%	20%
9	Globs	50%	20%
10	Maps	20%	10%
11	Supplementary books	10%	-
12	T.V	40%	20%
13	V.C. R /DVD	20%	10%
14	Video tape recorder	10%	-
15	Radio	60%	30%
16	Computer	80%	20%
17	Charts	70%	30%
Total	-----	38%	22%

The responses of inventory indicated the responses of teachers.it showed that 38% agreed that that teaching aids were available in their school but only 22% respondents reported that they used these aids during teaching. Most of the teachers explained their point of view that they had limited time or lack of resources they did not use these aids especially in teaching of Pakistan studies. It (bar graph) present the results of table one.



After finding the availability and utilization of A.V. aids The experiment was conduct on Government M.C. Girls High School. The results of pre-test and post-test were measured after six week treatment. The results of experimental and control groups on pretest and posttest have been presented in tables and data was analyzed through the use of mean, S.D, standard error and t-test.

Table 2. Significance difference between mean achievement scores of experimental group and control group before the experiment

Group	N	X	SD	Std. Error Mean	Df	t-value	p-value
Results of pretest of Control Group	45	21.8444	4.98614	.74329	88	.095	.924
Results of pretest of Experimental Group	45	21.7556	3.77886	56332			

t-value at 0.05=1.98

Table 1 shows the mean difference between pretests of control & experimental groups. The result shows that there was no difference between the scores of pretests of control & experimental groups. The means achievement scores on pretest control & experimental groups were 21.8444 and 21.7556 respectively. The standard deviation from the mean on pre-test was 4.98614 and 3.77886 respectively. Since the p-value is 0.924 which is greater than 0.05.this result shows that there is no difference between the scores of pretests of control & experimental groups' Hence, both the groups were found to be almost equal.

Table 3. Significance difference between mean scores of control group on Pre and Post Tests Control group

Group	N	Mean	SD	Std. Error Mean	Df	t-value	p-value
Results of pretest of Control Group	45	21.8444	4.98614	.74329	44	8.739	.000
Results of post-test of Control Group	45	26.6000	6.15482	.91751			

t-value at 0.05= 2.00

Table 2 shows the mean difference between pretest and posttest of control group. The result shows that there was significant difference found between the scores of pre and posttests of control group. The Average scores on pretest and posttest were M1= 21.8444 and M2=26.6000 respectively. The standard deviation from the mean achievement scores on pre-test and post-test were SD1= 4.98614 and SD2=6.15482 respectively The result indicate that there was significant difference found between the scores of pre and posttests of control group. 'Since the p-value is .000 which is less than 0.05. It means that there is significant difference between pretest and post mean achievement scores of control group after being treated by traditional learning method.

Table 4. Significance of difference between mean scores Pre and Post Tests of Experimental Group

Group	N	Mean	SD	Std. Error Mean	Df	t-value	p-value
Results of pretest of Experimental Group	45	21.7556	3.77886	.56332	44	16.598	.000
Results of posttest of Experimental Group	45	34.3333	5.23537	.78044			

t-value at 0.05=2.00

Table 3 shows the mean difference between pretest and posttest of experimental groups. The result shows that there is significant difference found between the scores of pre and posttests of Experimental groups. The mean achievement scores on pretest and posttest were M1= 21.7556 and M2= 34.3333 respectively. The standard deviation from the mean on pre-test

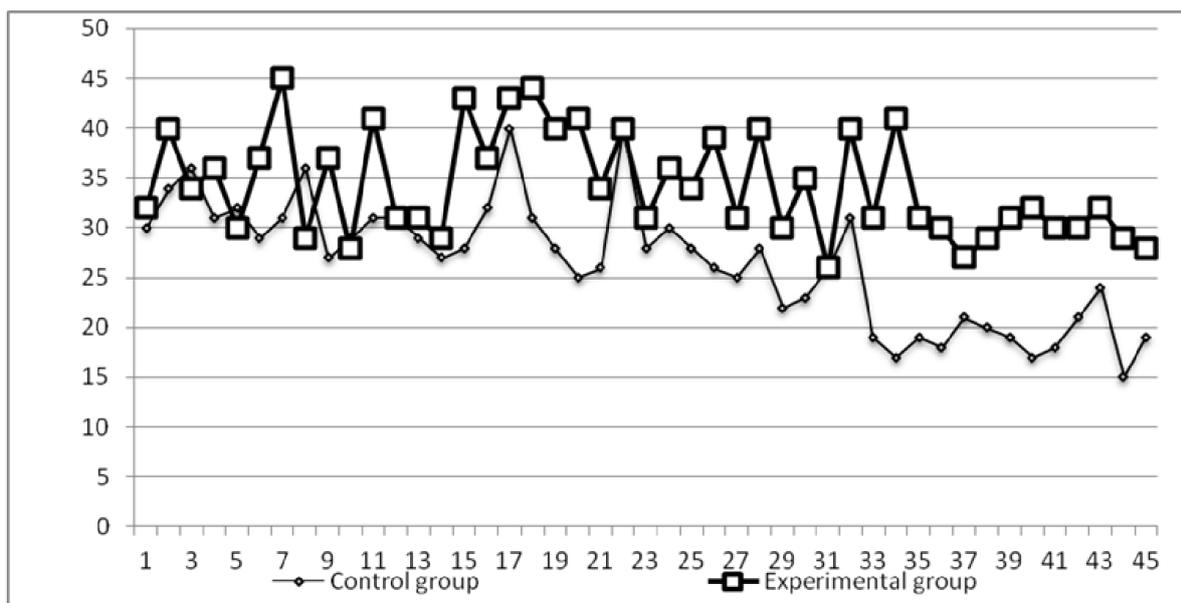
and post-test were SD1= 3.77886 and SD2 =5.23537 respectively. 'Since the p-value is .000 which is less than 0.05. It means that there was significant difference between mean scores on pretest and post of Experimental group after being treated by A.V. aids teaching.

Table 5. Significance of difference between mean scores of Posttests of Control and Experimental Group

Groups	N	Mean	SD	Std. Error Mean	Df	t-value	p-value
Results of posttest of Control Group	45	26.6000 .	6.15482	.91751	88	8.682	.000
Results of posttest of Experimental Group	45	34.3333	5.23537	.78044			

t-value at 0.05=1.98

This table 4 shows the mean difference between posttests of control and experimental group. The result shows that there is significant difference between mean scores of control groups and experimental group. The average scores on posttest were M1=26.6000 and M2=34.3333 respectively. The standard deviation of experimental group is less than control. The standard deviation from the mean on post-test were SD1= 6.15482 and SD2= 5.23537 respectively 'since the p-value is .000 which is less than 0.05. It means that students of experimental group who taught through A.V. aids performed well as compare to control group who taught through conventional method of teaching. Hence the difference greatly sported to experimental group.



The null hypothesis was rejected because the calculated value (8.682) is greater than tabulated value (1.98).The result showed that there was a significant difference between post- test mean scores of both groups Its mean the results were in favor of experimental groups.

This study results indicated that the mean scores of the experimental group who taught through the use of A.V. aids was higher than the control group who taught without A.V. aids. It was the Research hypothesis and also null hypotheses were formulated. The research hypothesis was accepted but the null hypotheses were rejected except one that there is no significant difference between pretest scores of both groups before the experiment. The mean score shows that they are almost equal. So the null hypothesis was accepted

CONCLUSION AND RECOMMENDATIONS

The study has shown that when appropriate audio-visuals are integrated into the curriculum to complement the traditional method, higher learning outcomes in terms of achievement scores would probably result. The present study was

conducted to examine the effect of A.V. aids on the cognition of students. There is strong evidence from the findings of this study that the experimental students taught with the audio-visual aided instruction achieved better than students taught with the traditional method. Performance was significantly improved by the use of audio-visual aided instructional approach in teaching Pakistan studies. The mean achievement scores of both experimental were significantly improved by the use of audio-visual aided instruction.

The study has shown that the use of audio-visual-aided instruction enhances student achievement in Pakistan studies better than the use of the traditional method at the secondary level. The Pakistan studies teachers should therefore be encouraged to adopt the method in their teaching. It is also suggested that researchers and teachers should explore the use of audio-visual-aided instruction to teach other subjects.

REFERENCES

- [1] Akram, S., and S, K. Malik. 2012. Use of audio visual aids for effective teaching of biology at secondary schools level Education Department, National University of Modern Languages Islamabad
- [2] Bhatti, L.R. 2001. Comprehensive Study of the Availability of Educational Facilities in Public and Private Schools and their impact on the Quality of Education. Unpublished M.A education
- [3] Thesis. University of Arid Agricultural Rawalpindi Pakistan.
- [4] Dale, E. 1996. *Audio-visual methods in teaching*. New York: Dryden Press
- [5] Flavell, 1985. *Cognitive Development*. 2nd ed. Englewood Cliffs, NJ: Praetice Hall.
- [6] Gay, L. R. 2003. *Educational Research*, 5rd edition
- [7] Kochhar, S.K. (2004). *Methods and techniques of teaching*. New Delhi: Publishers Pvt. Ltd
- [8] Malik, S. F. 2002. Use and Availability of Science Facilities at Secondary Level. Unpublished
- [9] Malik, K. S., 2012. Teaching of Pakistan studies at secondary level -a review. National University of Modern Languages (NUML) Journal of Elixir Social Studies 43 (2012) 6738-6745
- [10] M.A education thesis. University of Arid Agricultural Rawalpindi Pakistan.
- [11] Mir, H. 2003. Study on the Availability and Utilization of Educational Facilities in Girls Secondary Schools of Rawalpindi City. Unpublished M.A Education thesis. International Islamic University. Islamabad. Pakistan.
- [12] Oladajo, M.A., G, R. Olosunde., A, O. Ojebisi., and O.M. Isola. 2011. Instructional materials and students' academic achievement in physics: Some policy implications. *European Journal of Humanities and Social Sciences*, Vol; 2(1), 113-126.
- [13] Osokoya, I. O. 2007. Effects of video-taped instruction on secondary school students achievement in history, *International Journal of African & African American Studies*, 6(1), 27-34.
- [14] Ormrod, J.E. (1998). *Educational Psychology Developing Learners*: New Jersey. Prentice-Hall, Inc. Simon Schuster / A Viacom Company upper Saddle River.
- [15] Quarcoo-Nelson. R., I. Buabeng., and D, K. Osafo. 2012. Impact of Audio-Visual Aids on Senior High School Students' Achievement in Physics *Eurasian Journal of Physics and Chemistry Education*. 4(1): 46-
- [16] Yousaf, A. 2005. Effectiveness of Audio Visual Aids in Teaching Social Studies at Secondary Level in Islamabad. Unpublished M.A Education Thesis. University of Arid Agriculture Rawalpindi, Pakistan.