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## EFFECT OF AUDIO VISUAL AIDS IN THE LEARNING OF BIOLOGY SCIENCE AMONG LOW-ABILITY LEVEL STUDENTS IN SENIOR SECONDARY SCHOOLS

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**Abstract:** *This study investigated the effect of Audio-visual aids on the Learning of Science (Biology) among Low-ability level students in Ado local government of Ekiti state. Its main purpose was to improve performance in low-ability level Biology students by means of Audio-visual aids. The study employed the quasi-experimental design which utilizes non-randomized pre-test, post-test, experimental-control group system. The population of the study was made up of senior secondary school students in Ado local government of Ekiti state. The sample consisted of 180 Biology students selected from six secondary schools. The sampling techniques used were random sampling and purposive sampling techniques. The instrument used in the study was Biology Concept Test (BCT) and Audio-visual aids. The instrument was validated and reliability was ascertained using test-retest method. Reliability coefficient of 0.72 was obtained. The BCT was administered as both pre-test and post-test, Audio-visual aids (VCD) was used for treatment. Data collected were analyzed using Analysis of Covariance (ANCOVA) and Multiple Classification Analysis (MCA). It was concluded from the study that Audio visual aids can be used by teachers to effect improved ability level in low ability level Biology students. Based on the findings of the study, recommendations were made. Among which was that audio visual aids should be used by teachers to effect learning and improved level of performance in low-ability level students.*

**Keywords:** Effect, Audio-Visual Aids, Learning, Biology Science, Low-Ability Level Students, Secondary School

### Introduction

Education is presently undergoing changes with innovations in teaching methods as multiplicity in policies and procedures can be clearly observed. And at different levels of education system change is always welcomed as per required. The present situation calls for comprehensive change in almost every level of education so that practical and dynamic approach can be given to existing and new field of education. The crux of this modern education is to awaken the hidden curiosity and interest of the learner, nourishing his behaviors, attitudes and believes in order to develop basic and essential skills of learning and ability to think critically and to judge himself and others in a more beneficial manner.

Before modern education was incorporated students was passive listener and teacher was autonomous body who knows what, when and how of education. But in recent years the superiority is shifted towards students. Human beings' five senses are the doorway for effective learning, especially seeing, hearing and touching brings maximum knowledge for the individual. In educational literature, as explained by Selvi, (2007) more than few terms can be used, alternatively, for audio-visual aid i.e. educational technology, audio-video media, and instructional technology, learning resources, audio-video equipments, communication technology and educational media. Basically all these terminologies lead to the same edge i.e. teaching aids that are widely used by teachers, guide, facilitators and tutors to complement their words that ultimately helps learner to improve learning and to stay focused, clear and curious always.

Educational technology refers to the use of any technology in classroom which helps in increasing the pace of learning and results in helping teacher to teach less and learner to learn more (Singh, Sharma, Upadhyya, 2008). The use of audio-visual aids is preferred as they are considered as 85% of whole teaching and learning. They keep the individual learner focused on what is being taught by the teacher in the classroom session. According to Jadal, (2011) 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.

Audio-visual aids are good means of communicating with people and students. Audio-visual aids facilitate and assist the regular and traditional teaching session. They help in maintaining and retaining student's interest almost till the very end of the classroom session. Conceptualizing is clearer and concrete as the use of audiovisual aids appeals, activates and utilizes the five senses of individual student i.e. see, hear, touch, taste and smell. Also retention rate of the students increases by the use of audiovisual aids (Prasad, 2005).

Activity based learning leads to critical thinking, reasoning, creativity and the development of inquisitive mind which is the aim of education. Audio-visual aids entail activity for teacher as well as for students that keep them attentive and motivate them to think and inquire resulting in deep comprehension about what is being taught (Mangal S., 2008). Audio-visual aids help in maintaining the class discipline as every of the student is focused and attentive towards learning, unlike ordinary classroom lecture where the students may get bored and start whispering, which brings indiscipline in the classroom (Prasad, 2005).

Many authors have been writing on the effective use of audio-visual aids to improve and supplement teaching that results in desired social and behavioral change. Mohan (2010) opined in a study at India that 85% of the students are in favor of teaching methods that employ audiovisual aids as compared to typical lectures delivered without the use of

audio-visual aid. Jimoh (2009) agreed based on investigation that learning is reinforced with teaching aids i.e. audio-visual aids; as they motivate and stimulate the students' interest along with holding his/her interest during the whole instructional process. The researches conducted on the effectiveness of audio-visual aids in learning of students provides solid grounds to conduct further researches in the area, therefore, researcher decided to conduct a study on the effect of audio-visual-aids in the learning of biology among low-ability students in some selected public secondary schools in Ado-Ekiti.

### **Statement of the Problem**

A critical issue that calls for intervention in the recent development is the issue of the ability of the regular classroom lessons to meet the learning requirements of low ability students in science subjects. It is now thought that complimenting the classroom lessons with other teaching strategies may help them in learning.

### **Purpose of the Study**

The main purpose of this study was to encourage the participation, and gradually improve the learning of science in low ability students through the use of audio visual aids.

### **Hypothesis**

The only hypothesis tested in this study is:

There will be no significant difference between the low ability students taught with audio visual aids and those in the control group

### **Design**

The study employed quasi-experimental design which utilizes non randomized pre – test post – test experimental and control group system. Intact classes were involved as audio visual aids were used as a complimentary strategy to conventional/traditional method of teaching. The population consisted of all secondary schools Biology students in Ado local Government of Ekiti state, Nigeria. Sample size was 180. These were made up of low ability senior secondary two science students selected from six out of secondary schools through random and purposive sampling techniques in Ado local government of Ekiti state. Then Purposive sampling was then used to select schools having the same Biology teacher from senior secondary school one till date who have been used to the students to, be able to relate academic information about each student to the researcher.

### **Instrument**

The instrument used in this study include; Biology Concept Test (BCT). The instrument BCT consisting of 60 items was validated by science teachers, specialists in the field Science Education and Tests and Measurements and its reliability ascertained using test retest method. A reliability coefficient of 0.72 was obtained. The BCT was used as both pre-test and post-test. As pre-test, it was administered with the help of research assistants (Biology teachers) located in the schools used for the study, before treatment. Pre-test was used to

determine the student's initial knowledge on some aspects of Biology before treatment. The procedure involved two stages;  
-The process of identifying low performing students  
- Treatment

Process of identifying low ability students - The Biology teachers in the chosen schools worked with the researcher to identify the low performing students by finding the average score of each student in the school examination and the BCT administered as pre-test. Every student who did not score up to 50 marks on the average were noted. These students, who as well have not performed up to average in their continuous assessment, compared to their mates are referred to as "low ability students" and were pulled out for treatment. These students constituted the experimental group for this study. The treatment (experimental and control) lasted for five weeks of the secondary school Biology study period.

Audio visual aids, that is, VCD on which the topic taught for this study, Tissues and Supporting systems have been recorded was being played to the experimental group after school hours. The researcher, and or research assistant were physically available during the video lessons, to discuss with and answer students' questions on the topic being taught for the study. The researcher motivated the students to wait after the school hours for the watching of the VCD supplementary instructional and ask questions on what they are able to understand from the audio-visual lessons. Treatment lasted for five weeks after which post-test were administered on the subjects for the study. The results of the pre-test and post-test were recorded and used for analysis.

### **Results and Discussion**

To test the hypothesis, achievement mean scores of subjects exposed to mentoring activities and those in the control group were compared for statistical significance using Analysis of Covariance (ANCOVA) at 0.05 level of significance. The result is presented in Table 1

**Table 1: ANCOVA showing Achievement Mean Scores in of Low Ability Level Students in Experimental and Control Groups**

Source	SS	Df	MS	F Cal	F Table
Corrected Model	2455.185	2	1227.593	10.887	3.32
Covariate(pretest)	313.124	1	313.124	2.777	4.17
Group	2235.765	1	2235.765	19.828	4.17
Error	3382.694	30	112.756		
Corrected Total	5837.879	32			
Total	51163.000	33			

Table 1 presents the achievement mean scores of low ability level of students in experimental and those in the control group. The result shows that F-cal (19.828) is

greater than F- table (4.17) at 0.05 level of significance. The null hypothesis is rejected. This means there is significant differential effect of the use of audio visual aids on the ability level of students in experimental and control groups.

In order to determine the effect of treatment on the achievement of low ability level students in Biology, Multiple Classification Analysis (MCA) was used. The result is presented in Table 2

**Table 2: Multiple Classification Analysis showing the Achievement Mean Scores of Students in Experimental and Control Groups**

Grand Mean= 37.06					
Variable + Category	N	Unadjusted Devn'	Eta	Adjusted for independent + Covariate	Beta
Experimental	11	11.38	74	11.61	.19
Control	22	0.30		-5.82	
Multiple R <sup>2</sup>					.038
Multiple R					.194

Table 2 presents that low ability level students taught with audio visual aids had a higher adjusted post-test mean scores of 48.67(37.06+11.61) while those in the control group recorded an an adjusted post-test mean score of 31.24(37.06+(-5.82)). This implies that audio visual aids constitutes a veritable instructional technology for enhancing better performance of low ability students in Biology compared with conventional method.

### Discussion

From the result, the hypothesis was rejected. It was discovered that a significant differential effect of the use of audio visual aids exists among the ability levels. This agrees with the work of Gillani (2005) who discovered that when instructional technology is applied as supplementary approach in teaching of Biology; the students of experimental group were more attentive because the use of instructional technology stimulates interest and enhanced the motivational level of students. When the teacher teach Biology through concrete examples and instructional technology to experimental group; retention of the students was much better than that of the control group. Each low ability student has his/her level of, and the rate of responding to treatment. This differs from one another. Low ability students may require special attention with the aid of instructional technology and encouragements to measure up with their classmates, but no student is permanently dull.

### Conclusion and Recommendations

Based on the findings of this study, the following conclusion is drawn

1. Teacher may likely to motivate student better with the use of audio-visual aids in teaching learning process.

2. Use of audio-visual aid helps in supplementing the attention level of low ability students while increasing their understanding and intellectual capacity.
3. The study reported that the use of audio-visual aids (a. v.aids) brought positive and constructive change in the learning achievements of the low ability level students.

Based on the findings of this study, the researcher recommends that;

1. Audio-visual aids are an important tool of teaching learning process, and they make teaching-learning process more interesting and effective.
2. There should be provision of audio visual aids amongst other instructional materials in secondary schools to effect proper and easy learning in students
3. Proper use of audio-visual aids by the teachers makes difficult concepts and abstract ideas crystal clear to the students and they took keen interest in the classroom teachings.
4. Curriculum planners and policy makers may realize the importance and effectiveness of audio-visual aids and make it's use a compulsory part of the teachers' training programs.
5. Active learning through the use of audio-visual aids is best for students with diverse ability levels as it enhances the level of retention, understanding and comprehension in learners.
6. The study inferred that appropriate use of audio-visual aids shows the professional interest of the teachers towards teaching profession and develops both the teachers and students level of interest towards teaching and learning activities

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