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The Impact of Audio-Visual Aids on Senior Secondary School Students Attitude in Mathematics in Makurdi Local Government Area, Benue State

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ABSTRACT

The study investigated the impact of Audio-Visual Aids on Senior Secondary School Students attitude in Mathematics inMakurdi LocalGovernment Area. To achieve the objectives of the study three research questions were asked and hypotheses were formulated and tested at 0.05 level of significance. This study employed survey research design specifically a cross-section survey. The area of the study was Makurdi Local Government Area. Seventy five (75) students were randomly selected using hat and draw method. The research instrument was a questionnaire which comprises of sections that used to elicit data from the respondents.The data was collected by the researcher, analyzed using the descriptive statistics of mean and standarddeviation to answer the research questions while the hypotheses tested at 0.05 level of significance using chi-square test. The finding of the study suggested that Audio-Visual Aids have positive impact on senior secondary school student's attitude. The study also found out Audio-Visual Aids have positive impact on both male and female student's attitude towards Mathematics.

Introduction

Mathematical knowledge is of utmost importance for the individual relates to society and the environment in which he lives. This knowledge nowadays do not present in the daily life of many students, by difficulties in establishing relationships than learned with day to day situations. The National Common Curriculum Base (BNCC 2010) reports on this connection that the students have to establish the knowledge acquired with daily events.

Audio visual aids are important in education system. Ngonyani (2018) affirms that Audio -visual aids are the best tool for making teaching effective and the best in the dissemination of knowledge. So there is no doubt that technical devices have greater impact and dynamic informative system. As Singh (2005) defines: "Any device which by sight and sound increase the individuals 'experience, beyond that which is acquired through read described as an audio visual aids" Visual aids are those instructional devices which are used in the classroom to encourage learning and make it easier and interesting. The material like charts, maps, models, film strip, projectors radio, television are called instructional aids (Rather, 2004). According to Okeke (2013) visual aids are any visible materials or equipment employed while teaching to aid learning. Devries (2017) explains that visual aids such as pictures and photographs facilitate learning by supplementing teacher's verbal information. This underlies a well-founded theoretical underpinning that pictures, images and other visible aids promote better understanding to students than words alone (Mayer, 2005).

The role of mathematics in the understanding of the foundations and structure of science, technological advancement, and economic development as well as in the understanding of inter-relationship between disciplines is a very significant one. Also, mathematical method has penetrated many fields of knowledge and human endeavor (Ayoola, 2015).

Attitude refers to a learned tendency of a person to respond positively or negatively towards an object, situation, concept or another person (Sarmah& Puri, 2014). Attitudes can change and develop with time (Syyeda, 2016), and once a positive attitude is formed, it can improve students' learning (Akinsola & Olowojaiye, 2008; Mutai, 2011).

Gender is one of the factors to have considerable effects on students' academic performances especially in science subjects. Adigun (2015) affirms that gender is the range of physical, biological, mental and behavioural characteristics pertaining to and differentiating between the feminine and masculine (female and male) population. Barbara (2006) writing on "Gender and Genius" said "Gifted boys and girls need to learn to cope with their giftedness while careful1y following prescribed gender roles if they want to avoid the rejection of their communities.

The following questions will be asked to guide the study:

i. To what extent are Audio Visual Aids available in Secondary School in Makurdi Local Government Area?
ii. What is the impact of Audio Visual Aids on the attitude of Secondary School students towards mathematics in Makurdi Local Government Area?

iii. What is the impact of Audio visual aids on male and female secondary school student attitudes towards mathematics in Makurdi Local Government Area?

The following hypotheses are raised to guide the study and will be tested in the study at 0.05 level of significance.

i. There is no significant impact of audio visual aids on the attitude of students towards mathematics in Secondary School Makurdi Local Government Area.

ii. There is no significant impact of audio visual aids on male and female students attitude towards mathematics Makurdi Local Government Area

Methodology

The study adopts a sample survey research design. In this approach data was collected on sampled portion of a target population used to generalize for such populationThe study was conducted in Makurdi Metropolis of Benue State, Nigeria. The target population of the study is all 3,783 Senior Secondary (SS) 2 students. A sample size of 362 respondents was used for the study. A simple random sampling technique will be used to select respondents for the study. The instrument of data collection will be structured questionnaire. The questionnaire was prepared based on the likert 4-scale response points of Strongly Agree (SA)-4; Agree (A)-3; Disagree (D)-2, and Strongly Disagree (SD)-1 .The instrument was validated by 3 experts. A pilot test was carried out in a school outside the target schools for the study and the reliability of the instrument was determined using Cronbach Alpha to be. The research instruments was administered and collected by the researcher and the research assistant on the same day of administration. In analyzing the data, descriptive and inferential statistic was used. Descriptive statistics of mean and standard deviationwas used to answer the research questions posed for the study. Chi-square statistics was used to test the hypothesis for the study at 0.05 level of significance.

Result

Research Question 1

To what extent are audio visual aids available in secondary school in Makurdi Local Government Area?

Table 1: Mean and Standard deviation of the response to the extent to which audio visual aids are available

S/N	Items	$\bar{x}$	SD	Remark
1.	Slide-tape presentations	1.99	0.92	Disagreed
2.	Films	2.31	0.77	Disagreed
3.	Televisions programs	2.41	0.76	Disagreed
4.	Interactive white board	2.27	0.93	Disagreed
5.	Projection completely with online services	2.71	0.77	Agreed
Grand Mean		**2.34**	**0.83**	**Disagreed**

Table 1 shows the extent to which audio visual aids are available for the learning of mathematics. Item five (5) which says projection completely with online services was the only accepted item with a mean score of 2.71 and a standard deviation of 0.77. Item one (1) to four (4) were rejected. The grand mean in table 1 is 2.34 which shows that there are no sufficient audio-visual aids in the secondary school in Makurdi Local Government Area.

4.1.2 Research Question 2

What is the impact of audio visual aids on the attitude of secondary school students towards mathematics in Makurdi Local Government Area?

Table 2: Mean and Standard deviation on the response to the impact of audio visual aids on the attitude of students

S/N	Items	$\bar{x}$	SD	Remark
6.	Learning mathematics with computers captivate my attention because of the sound and visual	3.37	0.88	Agreed
7.	I have a more positive attribute of learning mathematics on YouTube	2.52	1.18	Agreed
8.	I participate in mathematics class more willingly when learning with audio-visual aids	3.15	0.80	Agreed
9.	I love a positive attitude learning mathematics when taught virtually	2.76	0.10	Agreed
10.	I am more at ease when learning mathematics virtually	2.20	1.08	Disagreed
Grand Mean		**2.80**	**0.81**	**Agreed**

Table 2 shows the impact of audio-visual aids on the attitude of secondary school students towards mathematics. Item six (6) was accepted with the highest mean of 3.37 and standard deviation of 0.88. Item seven (7) was accepted with a mean score of 2.52 and standard deviation of 1.18. Item eight (8) was accepted with a mean score of 3.15 and standard deviation of 0.80. Item nine (9) was also accepted with a mean of 2.76 and a standard deviation of 0.10. Item ten (10) had a mean of 2.20 with a standard deviation of 1.08. Item ten was rejected since 2.20 is less than 2.5. The grand mean

in Table 2 is 2.80. This implies that audio visual aids have positive impact on the attitude of secondary school students towards learning of mathematics.

4.1.3 Research Question 3

What is the impact of audio visual aids on male and female secondary school students' attitude towards mathematics in Makurdi Local Government Area?

Table 3: Mean and Standard deviation on the response to the impact of audio visual aids on male and female students

Gender	Q6		Q7		Q8		Q9		Q10		Grand Mean
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	
Male	3.28	0.99	2.43	1.15	3.13	0.76	2.80	0.97	2.22	1.10	2.77
Female	3.48	0.74	2.65	1.23	3.17	0.86	2.71	1.05	2.17	1.07	2.84

From Table 3, the grand mean for the male students taught mathematics using audio visual aids is 2.77 and the grand mean for the female students is 2.84. This implies that the female students have a more positive attitude towards students when taught using audio and visual aids then male.

4.1.4 Hypothesis 1

There is no significant impact of audio-visual aids on the attitude of students towards mathematics in secondary schools in Makurdi Local Government Area.

Table 4: Chi-square showing the analysis of the impact of audio-visual aids on the attitude of students towards mathematics

Item	df	x^2	Asymp. Sig
Chi-square	11	35.622^a	0.000

Table 4 shows that the x^2 calculated is 35.622^a and sig (p-value) is 0.000. Hence $p<0.05$, the null hypothesis is rejected. This implies that audio-visual aids have significant impact on the attitude of students towards mathematics in senior secondary school.

4.1.5 Hypothesis 2

There is no significant impact of audio-visual aids on male and female students' attitude towards mathematics in Makurdi Local Government Area.

Table 5: Chi-square showing the analysis of male and female taught mathematics using audio-visual aids

Item	Observed	Expected	df	x^2	Asymp.Sig
Male	35	37.5			
			1	0.333^b	0.564
Female	40	37.5			

Table 4 shows that the x^2 calculated is 0.333^b and sig (p-value) is 0.564. Hence $p>0.05$, the null hypothesis is accepted. This implies that there is no significant difference between male and female students taught Mathematics using audio-visual aids. This shows that both the male and female students had a positive attitude Mathematics when taught mathematics using audio-visual aids.

4.2 Discussion of Findings

Table 1 shows the extent to which audio visual aids are available for the learning of mathematics. Item five (5) which says projection completely with online services was the only accepted item with a mean score of 2.71 and a standard deviation of 0.77. Item one (1) to four (4) were rejected. The grand mean in table 1 is 2.34 which shows that there are no sufficient audio-visual aids in the secondary school in Makurdi Local Government Area.

Table 2 shows the impact of audio-visual aids on the attitude of secondary school students towards mathematics. Item six (6) was accepted with the highest mean of 3.37 and standard deviation of 0.88. Item seven (7) was accepted with a mean score of 2.52 and standard deviation of 1.18. Item eight (8) was accepted with a mean score of 3.15 and standard deviation of 0.80. Item nine (9) was also accepted with a mean of 2.76 and a standard deviation of 0.10. Item ten (10) had a mean of 2.20 with a standard deviation of 1.08. Item ten was rejected since 2.20 is less than 2.5. The grand mean in Table 2 is 2.80.

From table 4, hypothesis one was test and the result shows that audio visual aids have a significant impact on the attitude of student's towards Mathematics in Senior Secondary Schools in Makurdi Local Government Area.

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