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# EFFECT OF AUDIO ANIMATION INSTRUCTIONAL MEDIA ON MIDDLE BASIC EDUCATION PUPILS' ACHIEVEMENT IN LITERACY IN AGBANI EDUCATION ZONE

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#### **Abstract**

The purpose of this study was to investigate the Effect of Audio Animation Instructional Media on Middle Basic Education Pupils' Achievement in Literacy with particular reference on literacy. Quasi experimental research design was adopted in the study. Two research questions and three hypotheses guided the study. Area of the study was Agbani Education Zone of Enugu State. A sample of 485 Middle Basic II Pupils was used for the study. Purposive, cluster and simple random sampling techniques were used to draw the sample. Instrument used for data collection was Literacy Achievement Test (LAT). The instrument was constructed by the researcher and validated by three research experts. A reliability coefficient (Kendall's coefficient of concordance) of .75 was obtained for LAT. Experimental group was taught the selected literacy topics using Audio Animation Instructional Media while the control group was taught the same topics using charts. LAT was used to obtain the pupils' achievement scores at pretest and posttest levels. Mean and standard deviation were used to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the hypotheses at .05 significance level. Major findings of the study showed that Middle Basic Education pupils achieve higher in literacy when taught with Audio Animation Instructional Media than when taught with charts. Consequently, it was recommended in this study that use of Audio Animation Instructional Media for teaching literacy at Middle Basic Education level should be adopted by all public and private schools in Enugu State and beyond.

### Introduction

Literacy at middle basic education level, according to Akpan (2014) is the ability to read, write, handle information, express ideas and opinions, make decisions and solve problems in literacy. This was the focus of this study. George (2016) averred that teaching literacy to

middle basic education pupils involves equipping them to communicate clearly and effectively and form the foundation for progress in the educational system. George further alleged that pupils that can't read effectively fail to grasp important concepts, score poorly on tests and ultimately, fail to meet educational milestones. Literacy skills allow pupils to seek out information, explore subjects in-depth and gain a deeper understanding of the world around them. Natshi (2016) observed that, when middle basic education pupils cannot read and write well, they may likely become discouraged and frustrated in school, resulting in increase school dropouts, poor performance on standardized tests, increased truancy and other negative reactions. All of these can have major and long-lasting repercussions. Ajom (2019) submitted that through innovative strategies, the teacher can contribute meaningfully towards helping literacy learners to be active in class, get engaged and develop such interest that can improve their achievement in literacy. This is why it is so important to think about the strategies of teaching literacy skills in classroom to increase the pupils' achievement.

A major cause of middle basic education pupils' low achievement in literacy according to Olugu (2019) is teachers' non-use of appropriate instructional media for demonstrations and illustration of literacy concepts. Olugu defined Instructional media as the aggregate of all the materials and physical means on instructor (teacher) might use to implement instruction and facilitate learners' achievement of instructional objectives. Olugu listed Instructional media as the black board, the white board, audio and video conferencing, speaking-listening media, visual and observational media, reading-writing media, computer-based instruction, models, classroom technology, charts etc. Ramsey (2020) corroborated Olugu's views and found that the most common instructional media in use by teachers in middle basic education classes are charts. Ramsey described a chart as a graphical representation of data visualization, in which data are represented by symbols, such as bars in a bar chart, lines in a line chart, slices in a pie chart or pictures in a pictograph. Nuhu (2015) submitted that a chart is a sheet (of paper) or a cardboard on which diagrams or lists of figures that show information are presented. Use of chart may improve the understanding of a topic.

Leaner's tend to have a better understanding of topics taught with the use of charts as it's outcome steers them in the face, bringing to life their imaginations and clearing all doubts and misconception, (George, 2016). The visibility of teaching may be achieved through the use of charts consequently making teaching and learning process more interesting and understandable. With easy comprehension, retention and understanding of topics through the use of charts in teaching and learning process, it is expected to lead to an improved academic achievement and interest. However, research findings have shown conflicting results on the effect of use of charts on middle basic pupils' achievement and interest in literacy. While Baraje (2015), Buckie (2016) and Kennedy (2019) found charts to have increased pupils' Achievement and interest in literacy, Julius (2015), Natshi (2016), Agada (2018) and

Nnamani (2018) found the contrary. Hence, justifying more investigations such as done in this study.

Interestingly, Ramsey (2020) recommended that literacy teachers should use instructional media that are in tune with contemporary technological development to improve pupils' achievement in vital topics such as literacy. No doubt, there is no instructional media that is in tune with contemporary technological development which are not Computer Based. The term "computer" will undoubtedly suggest a machine used for computations, that is, mathematical calculations. This is certainly one of the functions of a computer, but to think of computers only as rather powerful calculating machines would seriously under- estimate the range of their possible applications. In addition to mathematical computations, computers today handle many tasks that involve little or no mathematical computations, and it is better to think of them as machines which handle information in logical ways. This fact about computer may have led to the various definitions of the term computer. For instance, Osaka (2017) defined computer as an electronic device which is capable of receiving information (data) and performing a sequence of logical operations in accordance with a predetermined but variable set of procedural instructions (program) to produce a result in the form of information or signals. Ezeliora (2017) described computer as an electronic machine which is capable of receiving, storing, recalling or retrieving information put in it.

Still on definitions of computer, Olinya (2018) defined computer as a device for storing large amount of information called data, and processing these data in specified ways in very short period of time. This implies that, computer is a machine specifically designed for the manipulation of coded information; an automatic electronic machine for performing simple and complex operation far beyond the capacities of man. Computer in its various forms has become an essential part of the learning process. Use of computer in education was broadly categorized into two by Buckie (2016) as; class use of computers and supportive use of computers. Class use of computers include computer as tool for presentation, encouraging pupils to train skills and instructing pupils on the possibilities of computers, while supportive use of computers include administration, preparing work sheet for the pupils, looking for information on the internet for lesson preparation. This study was based on class use of computers.

Computer in Education and computer through Education were differentiated by Onah (2019) as follows; computer in Education is about the use of computer or Information and Communication Technology (ICT) to facilitate education. This involves the application of computer into teaching and learning, from planning through implementation and up to the point of achieving learning objectives. Computer or ICT Education refers to computer or ICT as a subject of study. This requires proper planning for designing and implementing the curriculum that will have a broader perception of computer from the foundation to all levels of learners. Computer through Education refers to computer knowledge and skills acquired through education or acquiring computer knowledge and skills through the learning of other

subjects. This work was based on computer in Education as described above. Specifically, the focus of this work was the use of computer-based audio animation as instructional media in the classroom.

Animation refers to the art of making inanimate objects appear to move. According to Kim, Jex and Mogul (2016), animation is the rapid display of a sequence of images of two-dimensional (2-D) or three-dimensional (3-D) artwork or model positions to create an illusion of movement. The effect is an optical illusion of motion due to the phenomenon of persistence of vision and can be created and demonstrated in several ways. Computer animation therefore involves generating animated images by using computer graphics. Stone (2017) added that computer animation is essentially a digital successor to the stop motion techniques used in traditional animation with 3-D models, and frame-by-frame animation of 2-D illustrations. Audio animations are animations with audible sounds. Stone classified audio animations into two namely; programmed audio animations and repetitive audio animations.

Programmed audio animations refer to animations already programmed to read aloud or say what has been recorded as directed by the user. Repetitive audio animations are those programmed to repeat or echo whatever the user says, (Stone, 2017). Stone observed that repetitive audio animations are more suitable for classes within the first six years of basic education. Based on this, repetitive audio animation was used in this study. As an instructional media, the repetitive audio animation will assist the literacy teacher inculcate into the learners good hearing skills, pronunciation skills, reading skills and by extension good writing skills. Unfortunately, research evidence such as Derbuck (2014), Buckie (2016) and Kennedy (2019) reported that audio animation instructional media distracted middle basic pupils taught literacy. Conversely, Julius (2015), Wale (2016), Natshi (2016) and Ferdinand (2017) reported that audio animation instructional media enhanced middle basic pupils' achievement in literacy.

Still on conflicting findings, AL-Amin (2017) and Dante (2019) found that middle basic pupils taught literacy with audio animation and those taught with charts did not differ significantly in their achievement in literacy. These are just but few of the very many contradictory findings of researches on the effect of audio animation instructional media on pupils' achievement in literacy. Thus, this study is timely as it sought to bridge this gap thereby contributing to improve achievement of middle basic pupils in literacy.

### **Purpose of the Study**

The purpose of this study was to investigate the Effect of Audio Animation Instructional Media on Middle Basic Education Pupils' Achievement in Literacy. Specifically, the study sought to:

i. determine the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in Agbani Education Zone as measured with Literacy Achievement Test?

ii. determine the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in public and private schools within Agbani Education Zone as measured with Literacy Achievement Test?

# **Research Ouestions**

The following research questions guided the study

- 1. What are the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in Agbani Education Zone as measured with Literacy Achievement Test?
- 2. What are the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in public and private schools within Agbani Education Zone as measured with Literacy Achievement Test?

# **Hypotheses**

The following hypotheses were tested at 0.05 level of significance;

- 1. There is no significant difference between the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in Agbani Education Zone as measured with Literacy Achievement Test.
- 2. There is no significant difference between the literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in public and private schools within Agbani Education Zone as measured with Literacy Achievement Test.
- 3. There is no significant interaction between the use of instructional media and school type on Middle Basic II pupils' achievement in English language.

### Methodology

Quasi experimental research design was adopted in the study. Two research questions and three hypotheses guided the study. Area of the study was Agbani Education Zone of Enugu State. A sample of 485 Middle Basic II Pupils was used for the study. Purposive, cluster and simple random sampling techniques were used to draw the sample. Instrument used for data collection was Literacy Achievement Test (LAT). The instrument was constructed by the researcher and validated by three research experts. A reliability coefficient (Kendall's coefficient of concordance) of .75 was obtained for LAT. Experimental group was taught the selected literacy topics using Audio Animation Instructional Media while the control group was taught the same topics using charts. LAT was used to obtain the pupils' achievement scores at pretest and posttest levels. Mean and standard deviation were used to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the hypotheses at .05 significance level.

### **Results**

# **Research Question 1**

What are the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in Agbani Education Zone as measured with Literacy Achievement Test?

**Table 1:** mean achievement scores and standard deviation of experimental and control groups in pretest and posttest.

Group	N	Pretest		Posttest		
		Mean	SD	Mean	SD	
Experimental	249	35.54	4.11	76.23	0.57	
Control	236	36.05	4.09	50.16	1.33	

From table 1, the pretest mean achievement score and standard deviation of the experimental group were 35.54 and 4.11 respectively while the posttest scores were 76.23 and 0.57 for mean achievement score and standard deviation respectively. For the control group, the pretest mean achievement score and standard deviation were 36.05 and 4.09 respectively while the posttest were 50.16 and 1.33 for mean achievement score and standard deviation respectively. There was very little difference (0.51) between the two groups in the pretest but there was an appreciable difference (26.07) in the posttest. The experimental group exhibited higher achievement than their counterparts in the control group. The standard deviation values of both groups in pretest did not differ much however, the experimental group had lower standard deviation value than the control group in posttest, indicating that the mean achievement score for experimental group was more reliable.

## **Research Question 2**

What are the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in public and private schools within Agbani Education Zone as measured with Literacy Achievement Test?

**Table 2:** mean achievement scores and standard deviation of public and private schools' students in pretest and posttest.

Group	n	Pretest		Posttest	
		Mean	SD	Mean	SD
Public (Experimental)	129	35.21	4.04	76.11	0.52
Private	120	35.87	4.18	76.35	0.62

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(Experimental)					
Public (Control)	133	36.02	4.06	50.12	1.33
Private (Control)	103	36.08	4.12	50.20	1.33

From table 2, above the pretest mean achievement score of the public (experimental) was 35.21 while that of private (experimental) was 35.87. Similarly, the pretest mean score of the public (control) was 36.02 while that of private (control) was 36.08. The posttest mean achievement score of the public (experimental) was 76.11 while that of private (experimental) was 76.35. The posttest mean score of the public (control) was 50.12 while that of private (control) was 50.20. These results suggest that both groups (experimental and control) improved in their achievements in literacy in both public and private schools. Based on school ownership (public and private), it seemed that the achievement did not differ much. Rather, the experimental group in both public and private schools showed higher achievement than their counterparts in the control group. The standard deviation values followed the same pattern. The standard deviation values for pretest were greater than those of posttest. In pretest, the standard deviation values did not differ much, however, in the posttest, the standard deviation values differed much based on groups (experimental and control) in favor of the experimental group which had lower standard deviation value. Based on school type (public and private) the standard deviation values did not differ much.

# **Hypothesis 1**

There is no significant difference between the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in Agbani Education Zone as measured with Literacy Achievement Test.

### **Hypothesis 2**

There is no significant difference between the literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterpart taught using charts in public and private schools within Agbani Education Zone as measured with Literacy Achievement Test.

### Hypothesis 3

There is no significant interaction between the use of instructional media and school type on Middle Basic II pupils' achievement in Literacy.

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Table 3: ANCOVA analyses of the pupils' achievement scores

Source	Type III sum	DF	Mean	F	Sig.	Decision
	of squares		Square			
Corrected	2011.291	3	670.430	4.623	.000	
Model	3018.297	1	3018.297	20.815	.000	
Intercept	910.104	1	910.104	6.276	.000	Significant (Reject
Instructional	880.691	1	880.691	6.074	1.171	Hypothesis)
media						Not Significant (Do not
School type	470.701	1	470.701	3.246	2.161	Reject Hypothesis)
						Not Significant (Do not
Instructional						Reject Hypothesis)
media*School	69311.687	478	145.003			
type						
	76602.771	485				
Error						
Total						

Table 3, shows ANCOVA analyses of the pupils'achievement scores. For Instructional media, the f-calculated value of 6.276 is significant at .000 significant level which is less than 0.05 level set for this study. Hence, instructional media had significant effect in the study. Consequently, hypothesis 1 is rejected as stated because there was significant difference between the mean literacy achievement scores of Middle Basic II pupils taught using audio animation instructional media and their counterparts taught using charts in Agbani Education zone as measured with Literacy Achievement Test. The pupils taught literacy with audio animation instructional media achieved higher than those taught the same topics with charts. For School type (public/private), the f-calculated value of 6.074 is significant at 1.171 significant level which is higher than 0.05 level set for this study. Thus, school type had no significant effect on pupils' achievement scores in this study. As a result of this, hypothesis 2 is not rejected as stated because there was no significant difference between the literacy achievement scores of Middle Basic II pupils' taught using audio animation instructional media and their counterpart taught using charts in public and private schools within Agbani Education zone as measured with Literacy Achievement Test. Simply put, school type (public and private) did not influence the achievement of the pupils when taught literacy with audio animation instructional media and when taught with charts. For interaction effect, (Instructional media\*School type), the f-calculated value of 3.246 is significant at 2.161 which is higher than 0.05 level of significance set for this research. Thus, interaction effect is not significant that is no significant interaction between the use of instructional media and school type on Middle Basic II pupils' achievement in literacy. Hypothesis 3 is therefore not rejected as stated.

# **Summary of Findings**

From the results presented above, findings of this study were summarized as follows;

- 1. Middle Basic Education pupils taught literacy with audio animation instructional media (experimental group) achieved higher in literacy than their counterparts taught same topics using charts (control group).
- 2. Middle Basic Education pupils in public and private schools achieved equally in literacy when taught with audio animation instructional media and when taught with charts.
- 3. There was no significant interaction between instructional media and school type on pupils' mean literacy achievement scores in the study.

# **Discussion of Findings**

It was found in this study that Middle Basic Education pupils taught English language (literacy in particular) with audio animation instructional media (experimental group) achieved higher in literacy than their counterparts taught same topics using charts (control group). This finding agrees with the findings of Nnamani (2018), George (2016), Julius (2015) and Oluremi (2014) who in their separate studies found that audio animation instructional media enhanced basic education pupils' achievement in English language, particularly, literacy. Contrarily, the finding of this study in this regard disagrees with the findings of Kennedy (2019), Olayinka (2015) and Baraje (2015). Kennedy, Olayinka and Baraje in separate studies reported that audio animation instructional media inhibited basic education pupils' achievement by causing them some undesired distractions. Achievement, particularly academic achievement, is a major factor in the teaching and learning process. It is a result oriented construct.

At Basic Education level academic achievement shows the gain in knowledge of the pupils as a result of taking part in a learning activity or a programme. It shows the pupils' learning, that is, the changes in their behavioral repertoire, rather than just a change in behaviour. Use of instructional media has been implicated by researchers such as Hassan (2014), Julius (2015) and Justice (2017) as a major predictor of Basic Education pupils' achievement generally in literacy precisely. It is therefore interesting finding in this study that audio animation instructional media enhanced the pupils' achievement in literacy. Instructional media according to Ferdinand (2017) refers to materials that aid teaching and learning. These materials are of different kinds, modes and occur in different forms. In this computer age, these materials are seen in both hardware and softwares. Some of them combine different features while others are made of a specific feature. Audio animation instructional media use in this study combine both auditory and enticing visual features.

The findings of this study on effect of Audio Animation Instructional Media on Middle Basic Education Pupil's achievement in literacy have shown that conflicting findings made by researchers whose works were reviewed in this study may have resulted from researcher's competencies in manipulating the instructional media, control of extraneous variables or ability to determine which media to use for each topic. Also important is use of appropriate statistical tools, validity and reliability of the research instrument as well as conveniency of the learning environments. Consequently, the findings made in this study can provoke a probe into experimental procedures adopted by researchers with a view to improving the process.

It was also found in this study that Middle Basic Education pupils in public and private schools achieved equally in literacy when taught with audio animation instructional media. That is to say that there existed no significant interaction between school type and instructional media on the pupils' achievement in literacy in this study. This finding agrees with the findings of Al-Amin (2017) and Dante (2019) who separately found that Basic Education pupils in public and private schools achieved equally when taught literacy with Audio Animation Instructional Media. This suggest that Audio Animation Instructional Media do not discriminate in school type, rather the media are school type friendly. From the findings of this study which affirmed that Middle Basic Education pupils from public and private schools achieved, it is important for researchers to see the need to apply caution in the design of various Audio Animation Instructional Media so as to accommodate every learner irrespective of their school type (public/private). Similarly, teachers in both public and private schools have no excuse not to maximize the potentials of Audio Animation Instructional Media in promoting their pupils' achievement in literacy.

#### **Recommendations**

From the finding of this study, the following recommendations were made:

- 1. Nigerian teacher education curriculum should emphasize use of Audio Animation Instructional Media in microteaching and teaching practice exercises to avail literacy teachers (especially the Primary Education Studies (PES) students) more practical knowledge during their training.
- 2. Computer sets, projectors, Audio Animation Instructional Media software, electricity generating sets, impress for petrol or diesel and fortified security networks should be provided for all Basic Education schools.
- 3. All public and private schools should either employ a computer programmer or sponsor their computer teachers on a mandatory computer programming course to enable design computer based instructional media that would suit their peculiarities.

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