



TEACHERS' USE OF VISUAL AIDS IN ENHANCING TEACHING AND LEARNING PROCESS IN PUBLIC PRIMARY SCHOOLS IN BARKIN-LADI, PLATEAU STATE, NIGERIA

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Abstract:

The study investigated teachers' use of visual aids in enhancing the teaching and learning process in the public primary schools Barkin-Ladi, Plateau State in Nigeria. The researchers employed a combination of both quantitative and qualitative approaches: survey and phenomenology. The study targeted public primary school teachers, pupils, head teachers, heads of sections, and supervisors. The researcher used stratified random sampling technique, and non-probability purposive random sampling method. The sample size of the study was: 254 teachers, 391 pupils, 90 head teachers, 3 heads of sections and 13 supervisors. Descriptive statistics: frequencies, percentages, and inferential statistics were used. The findings revealed that the use of different types of visual aids like real objects, diagrams, charts, flashcards, maps and drawings was appropriate to all subjects and relevant to the teaching and learning process. The study recommended that: The study recommended that: there is need for refresher courses, workshops, and conferences for the teachers to improve their skill of using different types of visual aids to the needs of the public primary school pupils, the government should help the public primary schools' teachers by providing enough visual aids to use during the teaching and learning process, the education office should ensure that close supervision and monitoring of teachers is done promptly to ensure that the teachers use

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right materials to facilitate the teaching and learning process, and the head of department quality assurance, personnel manager, head of primary education section, supervisors, can also liaise with the head teachers to ensure that teachers are using different types of visual aids and redirect more resources for them, to improve teachers' utilization and improvisation of different types of visual aids head teachers should monitor and ensure that teachers are using different types of visual aids.

Keywords: teachers' use, different types of visual aids, enhancing, teaching, learning process, pupils

1. Introduction

It is essential to give education a solid foundation through the use of different types of visual aids because the system of education is dynamic and it changes and develops constantly as the needs of pupils change. This makes it necessary for the public primary school teachers in Barkin-Ladi to explore different ways to teach pupils to meet their different learning requirements. Visual aids refer to materials that are used to facilitate teaching and learning. A study done by Saidu (2016) stated that visual aids are types of designated teaching and learning materials that may be locally produce, they appeal mostly to the sense of seeing. They come in form of, for example, wall charts, photographs/pictures, real object, diagrams, images and posters and they can

In the same development, Olatoye (2017) revealed that there is statistically significant difference in the educational performance of students when they are taught with instructional materials than when they are not taught with them. Similarly, Achimugui and Onojahii (2017) established that learners retain more concepts when a variety of visual aids are used in teaching; and visual aids make it very possible for pupils to become more involved and active participants in the learning process instead of just being passive learners of the educational content.

Visual aids help learners explain thoughts and facts, improve comprehension through communication and learners are able to incorporate knowledge with prior learning. This in turn help teachers recognize misconceptions of learners. The learner can see, touch, smell or taste thereby making learning more meaningful. Idris, Shamsuddin, Arome & Aminu (2018) advance that visual aids are effective in conveying ideas and content more easily than verbal descriptions to learners. Learning is enhanced in the classroom when the course content is enriched with charts, diagrams and photographs. Therefore, the use of visual aids during the teaching and learning process has significant importance for the learning experience of the pupils in public primary schools.

2. Types of Visual Aids

There are different types of visual aids that are used for successful teaching and learning process today. Kayali, Elmaksoud, Atwa and Ibrahim (2014) enumerate the different types of visual aids which included: models, actual objects, charts, maps, pictures, flannel boards, flashcards, bulletin boards, whiteboard/chalkboards, and slides are important to the teaching and learning process due to the fact that visual aids are capable of attracting attention, motivating pupils, encouraging and making the lesson interesting to the pupils. Teachers should use different types of visual aids to teach different subjects offered in the public primary schools. The subjects are Mathematics, English, Primary Science, Home Management, and Health education, Creative Arts, Christian Religion Knowledge/Islamic Religion Knowledge, Agriculture and Social Studies. Bukoye (2019) in his study, pointed out that visual aids are essential tools in learning every subject in the school curriculum, they allow the learners to interact with words, symbols and ideas in ways that develop their abilities in reading, listening, solving, viewing, thinking and writing.

Furthermore, Shabiralyani, Hasan, Hamadi, and Iqbal (2015), Richards and Dolati (2011) claim that pictures are the most used visual aids for teaching vocabulary because pictures can spark interest in learners, they are an easy way of bringing the outside world into the classroom, put into context a particular language point, and motivate students to learn. The use of different types of visual aids such as models, actual objects, charts, maps, pictures, flannel boards, flashcards, bulletin boards, chalkboards, and slides in global perspective is important in the teaching and learning process. For instance, Manjale & Abel (2017) states that the use of various types of visual aids is essential during the teaching and learning process because it makes the learning process more effective; it builds greater understanding, reinforcement and retention of the subject matter.

In the same vein, Adebayo and Adigun (2018) asserted that the use of visual instructional materials not only make the discovery of facts easier but also glues them firmly in the memory of learners and makes motivated learners enjoy participating in lessons. For example, real objects like yams, stones, dog, desk, bicycle, table and chairs among others makes the lesson practical and understandable to the learners because they are the real materials that can be seen around us. In addition, whiteboard/blackboard can be useful to teachers in the classroom when explaining ideas to the pupils through writing. Teachers can incorporate the use of different types of visual aids in teaching and learning process to stimulate and make teaching and learning process more effective because children learn in two ways: orally and visually. Pupils, however, learn more rapidly when oral teaching is linked with something they can see, touch or handle.

Enhancing the teaching and learning process in public primary schools in Barkin-Ladi Local Government Education Authority with visual aids is most apt. This is because visual aids are helpful in helping learners to assimilate and remember easily what they have learned in the classroom. The Federal Republic of Nigeria (2014) sees education as an excellent instrument for individual and national development. We cannot talk of

effective teaching and learning without teachers' proper utilization of visual aids during the teaching and learning process. Manjale & Abel (2017) add that using various visual aids in teaching makes the process of teaching and learning successful as it creates greater comprehension, reinforcement and retention of subject knowledge. Motivating pupils with visual aids in the classroom is also pertinent to making pupils have an interest and pay more attention in the class.

3. Statement of the Problem

The use of different types of visual aids during the teaching and learning process in Barkin-Ladi is paramount because visual aids are one of the influential teaching facilities that enhance the learning process of pupils in the public primary schools. Adebayo (2018) points out that visual aids are objects used by teachers to enhance the classroom better, gives understanding of the subject, and makes the subject interesting and attractive to the pupils. In spite of the importance of visual aids, the use of visual aids by teachers in public primary schools during the teaching and learning process is still lacking. Reports by supervisors from the education office September 2017 to January 2018 show that teachers are not enthusiastic in using different types of visual aids.

There is therefore a growing concern amongst the head teachers, supervisors and stakeholders in education office Barkin-Ladi about teachers' lack of eagerness to use visual aids during the teaching and learning process in the classroom. For this reason, in order to fill the knowledge, gap the researchers deemed it necessary to investigate the relevance of using visual aids during the teaching and learning process.

3.1 Research Question

The following - research question will guide the study:

- How do teachers use different types of visual aids in public primary schools Barkin-Ladi Plateaus State in Nigeria appropriately in meeting the needs of the learners?

3.2 Research Hypothesis

The hypotheses of this study are based on an educated assumption or guess about the research outcome.

H₀: There is no significant relationship between the uses of different types of visual aids with pupils' comprehension of the lesson in public primary schools Barkin-Ladi.

4. Theoretical Framework

4.1 Dual-Coding Theory

Dual-Coding Theory by Paivio (1990) posits that images and words have different cognitive presentations and therefore the brain uses separate memory systems for different types of information. The rationale for using dual-coding theory in this study

was because the theory was relevant to this study in various ways as follows: First, the theory is appropriate when referring to remembering information, which is very crucial in the learning process. To recall information being taught is important because that would be the joy and intent of the teacher and also the learners. For example, we have the sense of hearing, smelling, touching, seeing and tasting. These collections of codes include visual codes and verbal codes that can represent letters, numbers or words, often referred to as symbolic codes.

In the same vein, Rieber (1994) cited by Paivo (1990) asserts that it is easier to recall information from visual processing codes than verbal codes because visual information is accessed using synchronous processing, rather than sequential processing. Rieber says, incorporating pictures to prose learning promotes learning, ensuring the pictures adhere to the learning task and children do not create mental images unconsciously or spontaneously while reading. This is important because it can increase the chances of learners to retain what they have been taught in the classroom which is important.

Secondly, visual and verbal information is processed differently in the human mind and along separate channels, creating separate representations for information processed in each channel. For example, if a teacher is teaching the pupils about different shapes, and he or she writes the word of different shapes on the chalkboard such as rectangle, triangle, square and circle without pupils seeing the real objects, they may forget the word. But, if the shapes are shown to them to pronounce, see and even draw the shapes in their exercise books, the pupils will never forget what they have seen, touched and drawn. Thirdly, the theory posits that the mental code corresponding to these representations is used to organize incoming information that can be acted upon, stored, and retrieved for subsequent use by the learners. It is vital to use both visual and verbal codes because the eye is not separated from the brain and they are part of the same organ images can be retrieved easier in memory (Sammons, 2016).

The theory is important to the research, as it is all about the learners' sensory memory. However, this cannot be done without the use of visual aids by an instructor, so that the pupils can integrate all the senses. Through the assistance of using visual aids, an instructor stimulates the mind of the pupils during the teaching and learning process irrespective of age. Manjale & Abel, (2017) observes that visual aids such as diagrams, real objects, maps, charts and flashcards help to stimulate and develop the brain of a child during the learning process. Therefore, teachers should make sure they use the right visual aids that incorporate all the senses in order to enhance the teaching and learning process. This is ascribed to the fact that the brain uses separate memory systems for different types of information as images and words have different cognitive presentations.

4.2 Conceptual Framework

Conceptual framework is a process whereby the researcher presents the similarity of the variables in the study. Orodho (2009) describes conceptual framework as a model of presentation whereby the researcher presents the similarity of the variables in a study.

The relationship may be shown graphically or diagrammatically through independent and dependent variables. The independent variables are using different types of visual aids, intervening variable is the process and dependent variables are the teaching and learning.

The interaction between the variables is presented in Figure 1.

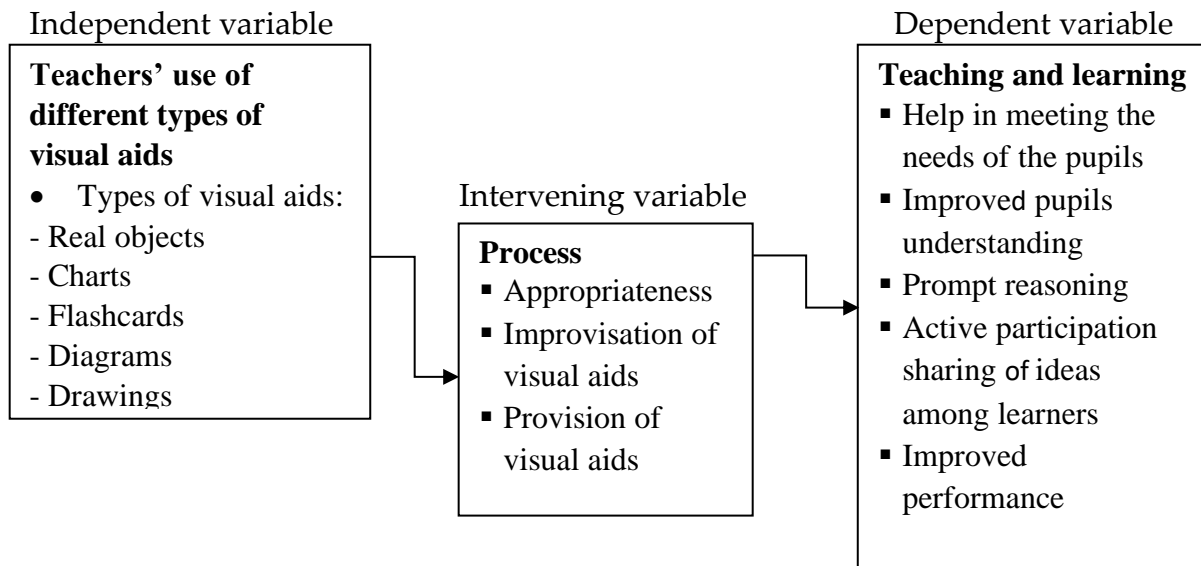


Figure 1: Relationship between variables
(Source: Researchers (2020))

The conceptual framework shows that the independent variables are teachers' use of different types of visual aids, while the intervening variable is the process and dependent variables are the teaching and learning. The independent variables are real objects, charts, flashcards, diagrams and drawings. Provision of different types of visual aids such as real objects, charts, flashcards, diagrams and drawings for the public primary school teachers to use in the classroom during the teaching and learning process is vital because without visual aids teaching and learning will be difficult for both the teachers and the pupils.

Teachers must also understand the ways learners think and feel about the content to be able to evaluate the thinking behind learners' own method (Robert, Aloisi, Higgins & Marjor, 2014). In fact, graphic representation has been deemed an effective medium for imparting complex and uncharacteristic information as it is believed to mitigate multiple level responses in the learner psyche (Alenizi, 2015). The intervening variable is the process which involves appropriateness, improvisation of visual aids, and provision of visual aids. The dependent variables include meeting the needs of the pupils, improved pupils understanding, prompt reasoning, make pupils to participate well and improved performance.

The influence of visual aids in promoting pupils' academic performance in teaching and learning process is indispensable because visual aids are used by teachers

to teach makes a successful and explicit transfer of knowledge from the teacher to the learner (Jeleelah, Oluwayemisi, and Theresa, 2016)). Teachers' use of visual aids during the teaching and learning process is paramount because it enables the pupils to comprehend the lesson

Quality teaching depends on the effectiveness of the use of visual aids by teachers. When the lesson is interesting, pupils - teacher interaction goes smoothly because pupils are motivated by the visual aids their teachers used in class during the teaching and learning process. The use of visual aids is crucial because visual aids provide knowledge and experiences to learners. Adebayo (2018) refers to visual aids as objects which the teacher uses in teaching and learning process to make learning meaningful to the learners. They make concepts, abstract ideas concrete in the teaching and learning process.

5. Literature Review

Quality and competent teachers are essential in the teaching and learning process. There are various types of visual aids in the classroom, which can be used by public primary school teachers in the teaching and learning. The use of different types of visual aids is global. Allen and Hart (2008) state that besides using teaching materials, the teacher must ensure that variety of the same is available in class for effective teaching and learning. They opine that materials and equipment presented in early childhood setting should be chosen to provide many and varied opportunities for learners to practice and master familiar skills.

A study by Dolati (2011) researched on harnessing the uses of visual learning aids in the English language classroom in University technology in Skudai, Johor Bahru, Malaysia. It was qualitative and data were collected through interviews. In using Dual-Coding Theory the study explored how to assist with changing the attitudes of language teachers towards the use of visual learning aids in the classroom. The findings of the study showed that visual material in language classes such as pictures, charts, maps, and diagrams help students to understand new concepts, which was beneficial for both teachers and students. He also stressed that flashcards could be helpful in building up new vocabulary and improving pronunciation.

The gap from Dolati's study is that teachers were not qualified and so did not use visual aids, and the inability of the government to provide sustainable access to quality education. The current study encouraged the public primary school teachers to put more effort toward the use of visual aids during the teaching and learning process in order to obtain quality education in public primary schools. Furthermore, the study sought to find out why teachers in public primary schools Barkin-Ladi Plateau State Nigeria were not enthusiastic in using visual aids during the teaching and learning process. Hence, the findings would help teachers to use visual aids on all subjects: mathematics, English language, and primary science, among others.

Hashemi and Pourgharib (2013) show that the outcome of the experimental post-test scores was (n=20), with notable improvement. They were visually taught and learned new vocabulary with the use of pictures, actual things, and this was a successful way of learning vocabulary. The control group (n=19) had lower scores than for the experimental group as they were trained orally. This indicated the instructor had only taught new vocabulary by describing sense, synonym, and antonym without showing their images.

Regional use of different types of visual aids to the process of teaching and learning is recognized and demonstrated to improve the learners' teaching and learning experience. King (2018) explored the use of visual aids as tools to understanding subject specific terminology in life sciences in Eben Donges high school, Western Cape, South Africa. The study adopted qualitative research method where data collection was through informal interviews, observation and focused group interviews. The population of the study were Grade 10 sciences learners who were being educated in English. Ten learners were purposively selected, 7 female and 3 male, with an average age of 16 years. Most of the participants were born in South Africa and had isiXhosa as local language.

The findings showed that by using visual teaching aids, constructivist teaching was promoted, which enhanced scientific skills and understanding. Also, the use of visual aids helps learners to understand and interact with various concepts. The results also confirmed that learners who were being taught in a language that was not their mother tongue struggled with life sciences. King's study was done on grade 10 learners only and did not capture the population, research questions, validity, reliability and methods in the abstract.

The researchers found King's study vital in understanding teachers' effective use of visual aids in enhancing the teaching and learning process in Barkin-Ladi. The study addressed the gap by finding out if teachers use different types of visual aids during the teaching and learning process in all subjects.

In Kenya, Mokuu (2012) studied the impact of teaching and learning materials on performance of children in pre-schools in Borabu district, Nyamira County. The study employed a descriptive survey design. The population of the study was 191 teachers; out of 61 head teachers in Borabu district, 52 head teachers were sampled using purposive sampling technique. The findings indicated that majority of teachers use visual materials such as charts and pictures and there were minimal resources the classroom needed for achievement of a long-lasting learning in preschools. Pre-school learners enjoy learning when teaching and learning materials are used resulting in achievement.

In another study, Yusta, Karugu, Muthee and Tekle (2016) examined the impact of instructional resources on mathematics performance of learners with Dyscalculia in integrated primary schools in Arusha, Tanzania. The research followed a descriptive survey design with its corresponding key instrument questionnaire for data collection. The target population of the study was 92 including head teachers and subject teachers from four schools and a sample of size of 52. The results showed that the majority of instructional materials available were textbooks, accompanied by chalkboard, as well as number cards, math kit, and stones, which were of great help to the learners.

The results show that instructional tools are important for teaching mathematics because they help dyscalculia learners remember rules, instructions and formulas. The strength was that pupils taught with instructional resources understood the subjects better than those without instructional materials. The gap in Yusta, Karugu, Muthee and Tekle study was that the instructional materials were not sufficient for teachers to use during the teaching and learning process.

At the federal and national level in Nigeria, the use of visual aids is generally accepted. Inyiagu (2015) studies the use of visual aids in the teaching of new trade subjects in senior secondary schools in Ebonyi State, Abakaliki. The population of the study was 53 trade subject teachers teaching in all the secondary schools. Questionnaires was the major instrument used for data collection and data were analysed using percentage and frequencies.

The findings of the study showed that 68 % of the teachers used visual aids weekly while 28% of the teachers used visual aids on a daily basis. The results also revealed that some teachers used demonstration method using visual aids when teaching. This shows that, the use of visual during the teaching and learning process is important to the learning process of the pupils because most of the teachers incorporate visual aids during the teaching of vocational/trade subjects.

The gap in Inyiagu's study was that the methodology, design, sample size of the study was not stated. The study was on senior secondary school in Ebonyi in Abakaliki State and not in Plateau State. Based on these findings, the focused on the public primary schools at all levels and not only a particular class. Visual aids cannot be narrowed to secondary schools' students only. Therefore, the researchers investigated why public primary school teachers were not enthusiastic to use visual aids during the teaching and learning process in Barkin-Ladi Plateau State in Nigeria.

A study by Idris, Shamsuddin, Arome, & Aminu (2018) was conducted on the use of visual aids and audio-visual materials in teaching and learning of classification of living things among secondary school students in Sabon Gari LGA of Kaduna State. The study employed quasi-experimental design, focusing on visual and audio-visual materials in teaching and learning computer science among secondary school students. The study used simple random sampling techniques and selected 100 students. The key result indicated that the use of instructional aids increased students' academic efficiency. There had been substantial improvements in students' academic achievement when taught with instructional aids in relation to students taught without instructional materials. Limitation of visual aids in public primary schools could be problematic to the teachers because they may not be able to teach as expected of them.

On instructional materials as correlates of students' academic performance in Biology in senior secondary schools in Osun State Nigeria, Awolaju (2016) conducted a study. The study used quantitative approach. The sample size being 40 students randomly selected from two different secondary schools in Ilesa East Local Government area in Osun State. The instrument used for data collection was a questionnaire. The study established that the experimental group performed better than the control group

because the latter group was not exposed to instructional materials during teaching and learning process. There was a great significant improvement in students who learn through instructional material.

The study was conducted on senior secondary schools only with special reference to biology and not on all subjects. The findings of the current study would, therefore, encourage teachers to make use of different types of visual aids in all subjects as long as they are relevant to their lesson contents.

6. Research Methodology

This study used a mixed-methods research approach, specifically a Convergent Parallel Mixed-Method Design was adopted for the study. A mixed-method involves using both qualitative and quantitative research methods in the same research study. Qualitative data tends to be open-ended without set responses; quantitative data usually includes closed-ended answers (Creswell, 2014). According to Creswell, (2014) a convergent parallel mixed method is a form of mixed methods design in which the researcher mixes or merges both qualitative and quantitative data in order to generate a comprehensive analysis of the research issues.

In this study, the researchers used both designs to provide a detailed description of the research issue during data collection and data analysis. While the qualitative design helped to understand the characteristics of the phenomena, the qualitative design helped to gain an in-depth understanding of the same. For qualitative instruments, interview guide, the researcher used phenomenological design whose purpose was to describe situations, experiences or phenomenon, as they exist. It was aimed at capturing the interpretation heads of sections and supervisors about their environment.

The target population was drawn in Barkin-Ladi local government. The population therefore comprised of 116 head teachers, 698 teachers, 16,662 pupils, 13 supervisors and 3 heads of sections. A sample is used because it may not be easy for a researcher to deal with the whole accessible population (Kimalu & Marimba, 2014). McMillan and Schumacher (2001) suggest that in determining sample size, the researcher needs to obtain enough to provide credible results. They suggest that, in quantitative studies, a sample of 20% of the total population is representative enough. The researchers used purposive and stratified random sampling techniques for head teachers, teachers, and pupils.

The researcher sampled 23 schools, which were, at least, 20% of the 116 schools in the four districts in Barkin-Ladi local government education authority. To determine the sample size of teachers, head teachers and pupils, Yamane (1967)'s formula was used. For a sample size to be representative of the target population, the sample size must be calculated taking into account the population confidence level (usually 95% but the higher the level the larger the sample size) and the margin of error (5 is a good margin). (Yamane, 1967).

The researcher used probability sampling and particularly stratified random sampling technique in order to obtain a teachers' sample particularly, following the formula designed by Yamane (1967) for calculating sample sizes for finite proportions (Kasiulevicius, Sapoka & Filipaviciute, 2006). Yamane's technique was used for proportionate sampling. The formula was given as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

N= Population size

E = level of significant or limit of tolerable error

1 = unit -a constant

n = sample size

Proportionate sampling is a variation of stratified random sampling used when subgroups in a population vary dramatically in size. Proportionate sampling strategies begin with stratification of the population into appropriate subgroups, and then random sampling within each subgroup (Wadsworth, 2005).

Rationale for the technique: this method was ideal for the analysis since the sample size should not be equal but proportionate to each stratum. The number of participants from each subgroup who were working in the population was not equal to their proportion. Therefore, the sample size of teacher is 254, 391 for pupils, and 90 for head teachers, 3 head of sections and 13 supervisors.

The research instruments are questionnaires and an in-depth interview guide as the instruments of choice in this research. To establish validity of an instrument, Mugenda and Mugenda (2003) recommend the use of professional expertise in that field. The validity of the instrument was determined by the used of professional experts in the subject area of educational administration and planning together with research experts whereby they were given the instruments to review before they were pilot tested.

The instruments were pilot tested on a small sample of 4 teachers, 4 pupils and 2 head teachers in Loh-kajoro public primary school and Rakung primary school in Ropp district which are not part of the respondents of the main study. This is in line with the recommendations by Mcmillan and Schumacher (2001) who noted that a small number as ten participants for pilot testing is adequate. The researcher conducted a reliability test using statistical package of social sciences (SPSS) version 23 to obtain Cronbach Alpha which gave result of .777, the overall instrument had acceptable reliability alpha = .77 (Taber, 2017).

The reliability of the questionnaire was ascertained by the pilot testing. A reliable coefficient should fall between 0.7 and 0.9 (Brukner & Khan, 2019). The reliability was subjected to the Cronbach alpha coefficient, which tested the consistency of the research procedure. The researcher used Cronbach alpha coefficient to obtain the reliability index.

The test obtained a Cronbach Alpha of .816. Cronbach's alpha is considered adequate if it falls between 0.7 - 0.9 (Brukner & Khan, 2019). The results show that the instrument had a reliability coefficient of 0.7-0.9; an indication that the instruments of this study were reliable.

In order to ensure the credibility of the qualitative data, the researcher used peer and experts in the area of pedagogy to evaluate the research instruments to increase clarity and remove possible biases in the instruments. The researchers received first a research authorization letter from the Education Secretary Barkin-Ladi local government education authority and the letter was immediately forwarded to all the head teachers in the selected public primary schools. The researcher administered the questionnaire to head teachers, teachers and pupils in the four districts and then interviewed heads of sections and supervisors. After the collection of data, quantitative data were coded and organized for analysis using SPSS version 23. These statistics results were used to describe the characteristics of the participants and their views on the different aspects sought in the study.

Ethical considerations play a fundamental role in all research studies. The researcher developed a participant informed consent form, which the participants would sign as recommended by Creswell (2014) in order to engage in the research. The researcher also carefully considered the ethical implication in relation to safety, privacy, and benefits of the participants, as well as the observation of the research integrity. For the pupils who are still under 14 years old, and who constituted part of respondents, consent was obtained through the head teachers who verified the questions and then asked them to feel free to fill the questionnaires; assuring them that their privacy would be protected. In this regard, Fouka and Mantzorou (2011) point out some value for informed consent of the respondents. It enables respondents to participate in a research at liberty and make informed decisions.

For privacy, the participants were assured that their identities would not be disclosed and their responses would only be used for the research purposes. The researchers explained the research purpose and dynamics to the teachers, head teachers, supervisors, heads of sections, and the pupils that were involved in the research and then signed the consent form. During the interview process, the researchers read to the hearing of each interviewee what they said in order for them to make corrections in case what they said was not well captured during the interview.

6.1 Analysis, Interpretation and Discussion of Findings

6.1.1 The Use of Different Types of Visual Aids and the Needs of the Learners

The research question focused on the use of different types of visual aids and the needs of the learners. The teachers were asked to rate the appropriateness of the use of different types of visual aids for the different subjects taught and the needs of the learners in public primary schools in Barkin-Ladi. Their responses are summarized in Table 1.

Table 1: Appropriateness of the Use of Visual Aids by Subject (n=254)

Subject	Very Appropriate F (%)	Appropriate F (%)	Not Sure F (%)	Inappropriate F (%)	Very Inappropriate (%)
English Language	104 (40.9)	122 (48.0)	21 (8.3)	7 (2.8)	0 (0)
Mathematics	119 (46.9)	121 (47.6)	10 (3.9)	3 (1.2)	1 (.4)
Primary Science	173 (68.1)	70 (27.6)	7 (2.8)	4 (1.6)	0 (0)
Physical and Health Education	105 (41.3)	122 (48.0)	21 (8.3)	5 (2.0)	1 (.4)
Social Studies	85 (33.5)	128 (50.4)	38 (15.0)	3 (1.2)	0 (0)
Craft	95 (37.4)	136 (53.5)	21 (8.3)	2 (.8)	0 (0)
Christian & Islamic Religious Studies	100 (39.4)	110 (43.3)	36 (14.2)	8 (3.1)	0 (0)
Handwriting	77 (30.3)	140 (55.1)	31 (12.2)	6 (2.4)	0 (0)

The analysis in Table 1 shows that 48.0% of the teachers from the four districts considered the use of visual aids as very appropriate. On the same, 40.9% of the teachers considered the use of different types of visual aids as very appropriate. Reigeluth and Engelmann (1999) in their theory focused on instruction, which includes the teacher as the instructor of the learners and informs the teacher on which visual aids to use during the teaching and learning process. The theory also emphasizes on teachers because they are vital in teaching the pupils. Again, 8.3% of the teachers were not sure while 2.8% of the teachers considered using different types of visual aids in teaching English language as inappropriate.

Based on the findings, the use of different types of visual aids was appropriate in teaching English language in public primary schools. However, some teachers were not sure of the appropriateness of the visual aids when teaching English language. Probably, the teachers who were not sure and those who considered the use of different types of visual aids in teaching English language as inappropriate may not understand the importance of visual aids during the teaching and learning process. It is therefore, important for the government education office to always organize seminars and workshops for teachers in order to teach them on the importance of visual aids during the teaching and learning.

Furthermore, the findings revealed that 47.6% of the public primary school teachers from the four districts in Barkin-Ladi considered the use of different types of visual aids in teaching Mathematics as appropriate. Further, 46.9% of the teachers considered it as very appropriate. To the same statement, 3.9% of the teachers indicated that they were not sure, 1.2% indicated inappropriate and 0.4% very inappropriate. From the statements, it was noted that majority of teachers from the four districts considered the use of different types of visual aids in teaching Mathematics as appropriate and very appropriate. However, few considered it as inappropriate, some were not sure of the appropriateness of the use of different types of visual aids in teaching Mathematics. For such teachers, training and workshops would be vital to helping them understand the importance of visual aids in teaching and learning process.

Still, on the same question, 68.1% of the public primary school teachers from the four districts: Foron, Heipang, Tafan and Ropp considered using different types of visual aids in teaching primary science as very appropriate, 27.6% of the teachers indicated it was appropriate. Then, 2.8% of the teachers stated that they were not sure and 1.6% of the teachers considered the use of visual aids inappropriate. In addition, 0.4% of the teachers indicated that using different types of visual aids in teaching primary science as very inappropriate. The responses of the public primary school teachers showed that the use of different types of visual aids was appropriate when teaching primary science. This finding concurs with Adebayo (2018), who opined that instructional aids impact on students' academic performance in physics in secondary schools in the federal capital territory Abuja, Nigeria. There was a significant change in academic performances of students taught with instructional aids compared with students not taught with the instructional aids.

On the same question, 48.0% of the public primary school teachers considered the use of different types of visual aids as appropriate. On the same, 41.3% of the teachers considered the use of different types of visual aids when teaching physical and health education as very appropriate. Furthermore, 8.3% of the teachers indicated that they were not sure on whether the use of different types of visual aids was appropriate in teaching physical and health education. Again 2.0% considered the use of different types of visual aids as very appropriate. On the contrary, 0.4% of the teachers stated that the use of different types of visual aids in teaching physical and health education was very inappropriate. This was probably because they were not using visual aids during the teaching and learning process in the classroom. Therefore, there is need for the head teachers to help such teachers to understand the relevance of visual aids to the learning process.

The results show that, 50.4% of the public primary schools teachers stated that the use of different types of visual aids in teaching social studies was appropriate and 33.5% said it was very appropriate. In addition, 15.0% of the teachers indicated that they were not sure and 1.2% of the teachers considered the use of different types of visual aids in teaching social studies inappropriate. Iwu et al. (2014) discovered that instructional materials facilitate teaching and learning of social studies in the primary school pupils. The data on Table 1 show that 53.5% of the teachers indicated that the use visual aids was appropriate in teaching craft, while 37.4% reported it was very appropriate. While 8.3% of the teachers responded that they were not sure, 0.8% of the teachers said it was inappropriate to use different types of visual aids to teach craft.

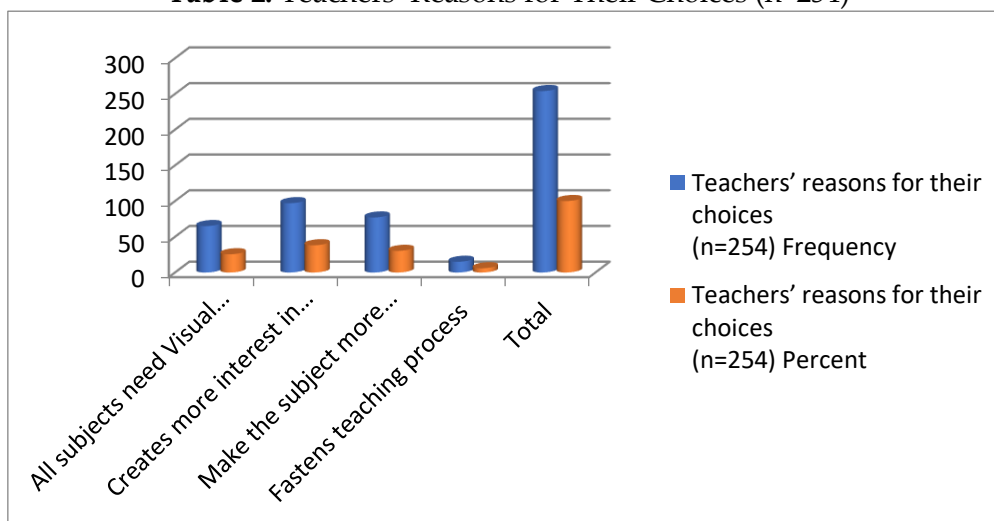
In the same development, 43.3% of the teachers indicated that the use of different types of visual aids in teaching Christian and Islamic Religious Studies was appropriate, 39.4% said very appropriate, 14.2% were not sure and 3.1% said inappropriate. In the same way, 55.1% of the public primary school teachers considered the use of different types of visual aids in teaching handwriting appropriate. While 30.3% considered it as very appropriate, 12.2% stated not sure and 2.4% indicated inappropriate.

This was in line with what the supervisors reported when they were probed during an interview on how they usually ensure that the use of visual aids is achieved during the teaching and learning process. Supervisor 11 said, *"I usually ensure the use of visual aids is achieved in the public primary schools through supervising teachers in the schools and telling them to provide the right visual aids during the teaching and learning process."* Supervisor 13 responded, *"The teaching and learning process is achieved through supervision. I evaluate teachers using evaluation forms and encourage them to use visual aids such as real objects in class for the pupils to see during the teaching and learning process."*

A general observation was that teachers who indicated that using visual aids in teaching all subjects in primary school was inappropriate and not sure had the lowest percentages. This means that visual aids are very essential in teaching all subjects. Achola et al. (2016) argued that teaching using various instructional materials improved the performance of learners in various learning activities, including ability to write dictated words. It is therefore arguable that visual aids play vital role when learning any subject matter because academic achievement and instructional aids seem to be inseparable. The use of different types of visual aids is paramount to the teaching and learning process, because every individual has a tendency to forget. Therefore, proper use of visual aids helps the public primary school pupils to retain more concepts permanently.

From the responses of the public primary school teachers from the four districts of Barkin-Ladi local government education authority on the statements in Table 1 above, the teachers were asked to give reasons behind their choices on why they agreed on the statements above concerning they used different types of visual aids during teaching. This was aimed at understanding the reasons for teachers' choices on appropriateness of visual aids in the teaching and learning process. Their reasons are shown in Table 2.

Table 2: Teachers' Reasons for Their Choices (n=254)

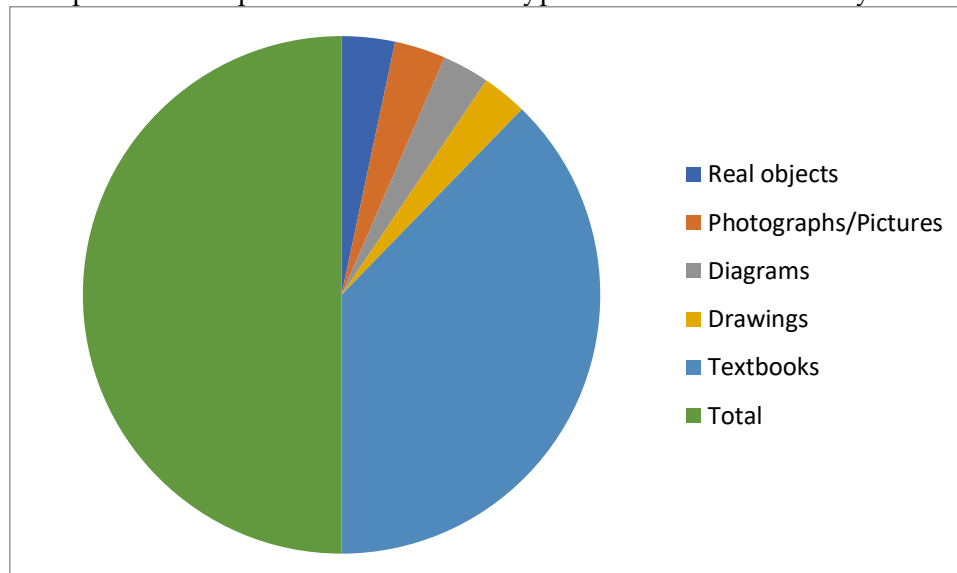


From the data in Table 2, 38.1% of the public primary school teachers said visual aids made the subject more practical/easier to learn, 30.3% stated that using different types of visual aids was appropriate because they made the subject more practical, easier

to learn and to understand. Furthermore, 25.5% of the teachers gave their reasons why the use of different types of visual aids was important as, all subjects need visual aids; there was no subject that a teacher cannot use visual aids to teach. Only 5.9% of the teachers indicated that the use of different types of visual aids fastened the teaching and learning process. From these reasons the use of different types of visual aids in the teaching and learning process was appropriate and very appropriate since they made the lesson interesting and easier to understand.

Furthermore, to find out the view of pupils on the different types of visual aids their teachers used during the teaching and learning process, pupils were asked about the type of visual aids their teachers used most when teaching them. Table 3 summarizes the responses of the pupils.

Table 3: Responses of Pupils on the Different Types of Visual Aids Use by Most Teachers



The data presented in Table 3 shows that 75.5% of the public primary school pupils indicated that their teachers used textbooks during the teaching and learning process, 6.6% revealed that their teachers used real objects during the teaching and learning process, while 6.4% said, their teachers used photographs/picture during the teaching and learning process in class. In addition, 5.9% of the pupils stated that their teachers used diagrams in class and 5.6% reported that their teachers used drawings during the teaching and learning process.

The results generally show that, majority of the public primary school teachers used textbooks; this means that they relied heavily on textbooks and neglected other visual aids such as diagrams, real objects, charts and posters. Teachers should not forget about the use of other visual aids such as models, maps, diagrams, photographs during the teaching and learning process.

Pupils were also asked whether they wanted their teachers to use different types of visual aids in teaching them in the class. This was done by asking the pupils to tick once in the boxes that were given to them in the question. This was important so as to

know whether the use of different types of visual aids was relevant in their learning process. The pupils' responses are summarized in Table 4.

Table 4: Pupils' Responses on their Teachers' Use of Different Visual Aids (n=391)

	Frequency	Percent
Agree	292	74.7
Disagree	99	25.3
Total	391	100.0

The highest percentage of the public primary school pupils from the four districts - 74.7% agreed that they wanted their teachers to use different types of visual aids to teach them and 25.3% disagreed. The results show that majority of the pupils agreed that they preferred their teachers to use different types of visual aids during the teaching and learning process in class. It was however noted that, few of the pupils disagreed on their teachers' use of different types of visual aids when teaching them. This maybe because the public primary school pupils from the four districts were not familiar with the different types of visual aids. Based on this, pupils should be informed on the importance of using visual aids in their learning process. Teachers can help the pupils by explaining to them the relevance of visual aids during the teaching and learning process so that the pupils would get used to and realize the importance of visual aids.

6.2 Pearson Chi Square test on the Use of Different types of Visual Aids and Improving Pupils Comprehension

It was pertinent to find out whether there is significant relationship between the use of different types of visual aids with pupils' comprehension of the lesson in public primary schools Barkin-Ladi. The researcher used Chi Square to test the three-hypothesis used in the study. An association was therefore conducted using Chi square test. A research question emanating from the original research question 2 was used to construct the hypothesis. Table 5 summarize the association results.

Table 5: The use of Different Types of Visual Aids and Improving Pupil's Comprehension

Chi-Square Tests	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	865.623 ^a	130	.000
Likelihood Ratio	351.710	130	.000
Linear-by-Linear Association	144.324	1	.000
N of Valid Cases	254		

a. 149 cells (92.0%) have expected count less than 5. The minimum expected count is .00.
N=254 Confidence level=.05 p=0.000 reject H0 if P < 0.05

H₁: The use of different types of visual aids has significant relationship with pupils' comprehension of the lesson in public primary schools Barkin-Ladi.

The test was conducted to establish if there was a significant relationship between the use of different types of visual aids and improvising pupils' comprehension. The test was done at a significant level of 0.05. The statistical significance determined whether the null hypothesis should be rejected or fails to reject. The test gave p-value at 0.000. If p-value ≤ 0.05 , H_0 was rejected, while H_1 was accepted which led to conclusion that there was a statistically significant relationship between use of different types of visual aids with pupil's comprehension.

This implies that the use of different types of visual aids during the teaching and learning process by the public primary school teachers would help pupils to comprehend the lesson better. The implication is that when there are different types of visual aids, they contribute to high level of pupils' comprehension of the lesson.

7. Conclusion

Generally, from the foregoing discussions and the evidence provided by the findings, the following conclusions were made: The public primary school teachers considered the use of different types of visual appropriate on all subjects offered in the public primary schools appropriate. Pupils also considered visual aids as important to their learning process. This is because they create the environment of interest for the pupils and help to increase their vocabulary.

In cases where the government could not provide all visual aids teachers should endeavour to improvise visual aids during the teaching and learning process. The implication of neglecting the use of different types of visual aids by teachers is a serious issue which have to be looked at. This is because, it could slow the learning process of the pupils which in turn would affect the performance. Pupils need to use all their senses especially the 3 senses: hearing, touching and the sense of sight for effective learning. The use of different types of visual aids during the teaching and learning process should not be neglected because visual aids have positive impact on both teaching and learning process. With the help of using different types of visual aids, the thinking process of the pupils will be stimulated. The research has further shown that the type of visual aids mostly used by public primary school teachers were textbooks which they continued to rely heavily on for teaching.

7.1 Recommendations

In view of the findings of this study, the following recommendations were made:

- 1) There is need for teachers in the public primary schools to use different types of visual aids during the teaching and learning process and improvise visual aids where there is none in order to help the pupils.
- 2) The government should help the public primary schools' teachers by providing enough visual aids to use during the teaching and learning process.

- 3) The education office should ensure that close supervision and monitoring of teachers is done promptly to ensure that the teachers use right materials to facilitate the teaching and learning process.
- 4) The head of department quality assurance, personnel manager, head of primary education section, and supervisors, should liaise with the head teachers to ensure that teachers are using visual aids and redirect more resources for them.
- 5) To improve teachers' utilization and improvisation of different types of visual aids head teachers should monitor and ensure that teachers are using different types of visual aids during the teaching and learning process.

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