

Utilization of Audio and Visual Resources for Pupils' Quality Learning Outcomes in Private Primary Schools in Port Harcourt Metropolis, Rivers State

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ABSTRACT

This study investigated utilization of audio visual resources for pupils' quality outcomes in private primary schools in Port Harcourt metropolis, Rivers State. The research adopted a descriptive survey method and encompassed a population of 10 registered private primary schools comprising a total of 1500 staff members. A sample of 50 participants including both head teachers and class teachers were selected using a stratified random sampling technique. Data was collected using a questionnaire titled Utilization of Audio -Visual Resources and Pupils' Quality Learning Outcomes (UAVRPQLOQ) and analyzed using mean, standard deviation and independent t-test. The findings revealed a high extent of utilization of both audio and visual resources in the classroom with audio resources such as recorders speakers and MP3 phonograph aids being perceived as beneficial for teaching and learning. Visual resources including educational posters, videos and cartoons were also highly utilized and effective in enhancing pupils' learning outcomes. Based on the findings, recommendations were made for educators to enhance digital literacy skills, policy makers to allocate adequate funding, students to actively engage with multimedia materials, parents to collaborate with educators and educational community to advocate for the integration of audio-visual resources into curriculum design and policies. These recommendations aim to optimize the use in of audio-visual resources and improve pupils' learning outcomes in private primary schools.

Keywords: Utilization, Audio, Visual, Resources, Pupils', Quality, Learning Outcomes, Schools, Port Harcourt Metropolis, Rivers State.

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INTRODUCTION

The quality of primary education in Nigeria significantly depends on instructional methods and learning materials that enhance learner engagement, comprehension, and retention. Audio and visual resources play a crucial role in promoting quality learning outcomes among pupils. Audio-

visual instructional resources include tools such as charts, pictures, projectors, educational videos, audio recordings and other multimedia that present information through sight and sound, which caters for diverse learning preferences and reinforcing conceptual understanding (Oladapo, 2000).

In Port Harcourt Metropolis, private primary schools often boast more flexible funding and innovative approaches to teaching compared to public schools. A state-wide evaluation indicated that the availability and utilization of visual and audio instructional resources is relatively high in private primary schools compared to public ones, which underscores the differential access pupils have to enriched learning environments within the same educational ecosystem. This differential is significant because private school pupils benefit from enhanced instructional inputs that support quality learning outcomes (Godfrey-Kalio & Osiri-Eme, 2021). Godfrey-Kalio and Osiri-Eme (2021) study highlighted the importance of these resources in facilitating teaching and learning, although it also recommended sustained professional development for teachers to effectively use these tools.

Research (e.g., Olube, 2015) conducted specifically in Port Harcourt confirmed that pupils respond positively to audio-visual modes of instruction. The study on primary school pupils exhibited high engagement and improved intellectual response when audio-visual learning processes were employed. The findings suggested that audio-visual instruction boosts pupils' social and intellectual ability to develop, reinforcing that learners are more receptive when instruction transcends text-only delivery (Olube, 2015).

The theoretical impetus for using audio-visual resources lies in multisensory learning theories, which argue that learners remember information better when both visual and auditory senses are engaged. Instruction that combined looking and hearing supports cognitive processing, which allows students to connect abstract concepts with concrete representations, thereby enhances comprehension and retention (Mayer, 2001, 2005). For primary pupils, who are developing foundational literacy and numeracy skills, such enriched sensory input transforms complex ideas into accessible knowledge and facilitate a deeper understanding of subjects.

Quality learning outcomes from audio-visual utilization manifest in several key areas. First, audio-visual tools can improve attention and motivation. Pupils exposed to dynamic visual stimuli or sounds are more likely to stay focused and participate actively in lessons compared to those in traditional teaching environments (Godfrey-Kalio & Osiri-Eme, 2021). Second, these resources make abstract and difficult concepts more concrete, thus aiding comprehension for example; displaying animated videos of scientific processes helps pupils' grasp phenomena that are difficult to explain through text alone. Third, reinforcing instruction through multiple sensory channels, audio-visual resources cater for different learning styles, enables teachers to reach a wider range of pupils effectively.

Despite these benefits, challenges impede the optimal utilization of audio and visual resources in private primary schools in Port Harcourt Metropolis. A common barrier across Nigerian contexts includes limited funding and inadequate acquisition of high-quality instructional materials (Enekwe et al., 2021). Even private schools, which are relatively better resourced, lack modern audiovisual equipment like interactive projectors or educational software due to the high cost of procurement and maintenance. Moreover, insufficient teacher training on how to integrate these resources into pedagogical practice can result in underutilization or rote use without meaningful impact on pupils' learning outcomes.

According to the Federal Republic of Nigeria (2014), the use of audio and visual resources in schools holds strong promise for improving the quality of pupils' learning outcomes,

and by engaging pupils actively, clarifying abstract concepts and accommodating diverse learning styles, these instructional resources enhance both the teaching process and student achievement. However, achieving their full potential requires addressing financial, technical, and professional barriers through collaborative efforts among educators, school leaders, and policymakers.

Statement of the Problem

The quality of pupils' learning outcomes at the primary school level is a major concern for educators, parents and policymakers, given its foundational role in shaping future learning outcomes. In recent years, audio and visual instructional resources have been recognized as vital tools for enhancing pupils' understanding, motivation, and retention of learning experiences. These resources help transform abstract concepts into concrete representations, making learning more meaningful and learner-centered. In spite the growing emphasis on the use of audio and visual resources in teaching, evidence suggests that their utilization in many private primary schools remains inconsistent and in some cases inadequate.

In Port Harcourt Metropolis, private primary schools are generally perceived to be better equipped than public schools; however, the extent to which available audio and visual resources are effectively utilized to promote pupils' quality learning outcomes remains uncertain. Observations by the researcher indicated that some teachers still rely heavily on traditional, teacher-centered instructional methods, with limited integration of audio and visual materials into classroom practice. Where such resources are available, challenges such as inadequate teacher competence, poor maintenance, and lack of systematic instructional planning may hinder their effective use.

Consequently, pupils do not fully benefit from enriched learning experiences that promote comprehension, creativity and academic achievement. This situation raises critical concerns on whether the utilization of audio and visual resources in private primary schools in Port Harcourt Metropolis is sufficient to support pupils' quality learning outcomes, which necessitates this systematic investigation.

Aim and Objectives of the Study

The aim of the study is to investigate the utilization of audio-visual resources for pupils' quality learning outcomes in primary schools in Port Harcourt metropolis, Rivers State.

The specific objectives sought to:

- Assess the extent the audio resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.
- Identify the extent the visual resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.
- Determine the extent of difference in the use of audio and visual resources in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.

Research Questions

Specifically, this study sought to address the following key questions:

- What is the extent to which audio resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State?
- What is the extent to which visual resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State?
- What is the difference in the level of utilization of audio and visual resources in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State?

Hypotheses

The following hypotheses guided the study and were tested at 0.05 level of significance:

- There is no significant difference in the mean ratings of head teachers and class teachers on the extent audio resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.
- There is no significant difference in the mean ratings of head teachers and class teachers on the extent visual resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.
- There is no significant difference in the mean ratings of head teachers and class teachers on the level of utilization of audio and visual resources in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.

THEORETICAL FRAMEWORK

Experiential Learning Theory

Experiential Learning Theory (ELT) is a framework that emphasizes learning through experience, asserting that knowledge is constructed through a cyclical process of doing, reflecting, and applying (Kolb, 1984). Unlike traditional learning approaches that rely heavily on passive reception of information, ELT highlights the importance of active engagement, where learners interact directly with tasks or phenomena to develop understanding and practical skills. The theory posits that learning is most effective when it integrates concrete experiences, reflective observation, abstract conceptualization, and active experimentation, forming a continuous cycle that fosters deeper comprehension and application of knowledge.

Concrete experience represents the initial phase of the learning cycle, where learners encounter new situations or engage in hands-on activities. This may involve laboratory experiments, fieldwork, role-playing, simulations, or real-life problem-solving tasks. The learner's direct involvement in these activities provides the foundation for observation and reflection. Reflective observation follows, enabling learners to analyze and evaluate their experiences. At this stage, individuals consider what occurred, identify patterns, recognize errors, and compare outcomes with expectations, thereby constructing meaningful insights that guide future behavior (Kolb, 2015).

Abstract conceptualization is the phase where learners synthesize reflections into concepts, models, or principles. Through critical thinking, learners generate generalized knowledge that extends beyond the immediate experience, allowing them to understand underlying mechanisms and develop strategies applicable in other contexts. Finally, active

experimentation involves applying these newly formed concepts to real-world scenarios or new learning situations, testing hypotheses, and refining approaches based on feedback. This cycle is iterative, ensuring continuous improvement and skill development.

ELT has been widely applied in educational settings to enhance student engagement, problem-solving skills, and retention of knowledge. In primary and secondary education, experiential methods such as project-based learning, field trips, and collaborative tasks enable pupils to link theory with practice, promoting deeper learning outcomes (Kolb & Kolb, 2017). In teacher education, ELT informs methods for training educators to employ active learning strategies, ensuring they can translate pedagogical theories into effective classroom practice.

Critics, however, note that the effectiveness of experiential learning depends on the learner's reflection and cognitive processing abilities, as mere participation in activities without guided reflection may not result in meaningful learning (Moon, 2004). Furthermore, implementing experiential methods can be resource-intensive, requiring materials, time, and structured support to facilitate each stage of the learning cycle. Despite these challenges, ELT remains influential, emphasizing learner-centered education and the integration of practical experiences with cognitive processing to enhance knowledge retention, skill acquisition, and adaptive learning.

Therefore, Experiential Learning Theory provides a robust framework for understanding how learning occurs through direct engagement, reflection, conceptualization, and experimentation. Through the promotion of active participation and critical reflection, ELT enhances cognitive, emotional and practical development, making it a valuable approach for improving educational outcomes across various levels of schooling.

CONCEPTUAL FRAMEWORK

The conceptual framework of the research is given as:

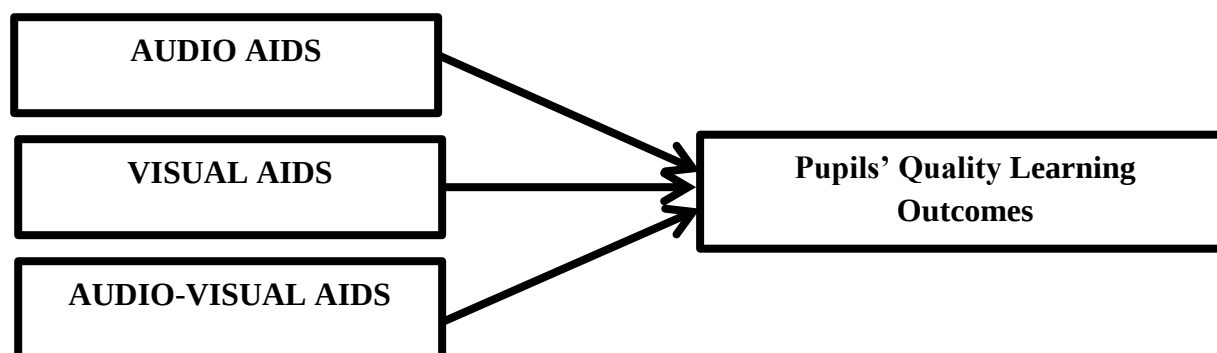


Figure 1: Conceptual Framework

According to the conceptual framework the visual aids represents the independent variable while the enhancing learning process acts as dependent variable. The model shows the factors that influenced in enhancing learning process.

Extent of Utilization of Audio Resources for Pupils' Quality Learning Outcomes

The effective incorporation of audio instructional resources in the classroom has long been recognized as a means to improve teaching quality and pupil learning outcomes. Audio resources such as radios, tape recorders, recorded instruction, language labs, audiobooks, smart board and other sound-based instructional media are intended to support distinct auditory learning pathways and enhance pupil engagement, especially in contexts where diverse learning needs are present (Mayer, 2001; Oladapo, 2000). However, empirical evidences suggest that the actual extent of audio resource utilization in Nigerian primary schools, including those in Port Harcourt Metropolis, remains limited.

A comprehensive study by Godfrey-Kalio and Osiri-Eme (2021) evaluated instructional resources in primary schools across Rivers State, which includes both public and private sectors found that while private schools generally exhibit relatively higher availability of audio instructional resources compared to public schools, the actual utilization of these audio materials was still low overall. The study reported that resources such as audio cassettes, cassette recorders, compact discs and basic audio player devices were present only to a limited degree and teachers were often reluctant or unable to make consistent instructional use of them.

Further analysis within the same research context revealed that even where audio resources exist, they are seldom used effectively (Mayer, 2005). For example, many teachers prefer traditional teaching methods over audio-assisted instruction due to familiarity, limited pedagogical training, and discomfort with integrating technology into everyday lessons. This underutilization has over the years limited the potential benefits of audio resources in improving pupils' comprehension, attention and retention that underpin quality learning outcomes.

Research (Samphina Academy n.d) conducted in pre-schools showed that although whiteboards and some basic instructional tools were widely used, modern audio facilities such as tape recorders and radio sets were rarely used and often unavailable, with the majority of audio resources found in only a small minority of schools. Where these modern audio tools were available, teachers tend to use them infrequently due to a lack of training, time constraints and inadequate knowledge of how to incorporate them into lesson delivery.

The limited utilizations are frequently tied to systemic challenges that cut across many school contexts in Nigeria, particulaly in Port Harcourt, Rivers State. The key inhibitors include inadequate funding for acquiring and maintaining audio resources, lack of teacher preparation and professional development in media integration, and minimal institutional emphasis on diversifying instructional strategies beyond traditional chalk-and-talk pedagogies (Enekwe et al., 2021). These constraints are well documented among studies examining instructional resources at primary and secondary levels, where financial limitations often result in schools possessing only rudimentary audio equipment if any at all.

Furthermore, the gap between availability and utilization also reflects deeper curriculum and policy issues. While national education policies emphasize the importance of instructional resources for enriched learning, the translation of these policies into practice at the classroom level is often incomplete. Without systematic professional development and monitoring, teachers may lack confidence or incentive to adopt audio resources, even when they are technically available. This disconnect undermines the anticipated impact of audio resources on learning quality, especially in foundational stages such as primary education.

Notwithstanding these challenges, there are instances where audio instructional resources positively contribute to learning outcomes when properly integrated. Language laboratories,

audio drills, and teacher-recorded instructional content have been shown to improve comprehension in language learning contexts and enhance listening skills when combined with other instructional strategies (e.g., interactive audio sessions). However, they remain limited and are typically contingent on targeted teacher training and technological support, which are not yet widespread in most primary schools.

The extent to which audio resources are utilized in primary schools vis-à-vis private schools in Port Harcourt Metropolis is generally low despite the recognized pedagogical benefits. Availability does not necessarily translate to effective use; audio resource utilization is constrained by factors such as inadequate training, limited funding, and traditional teaching preferences (Olube, 2015). The implication is that simply making audio resources available is insufficient. For pupils to reap the full benefits of audio-enhanced learning and achieve higher quality outcomes, concerted actions are needed especially in teacher education, resource allocation and institutional encouragement of diversified instructional methods.

Extent of Utilization of Visual Resources for Pupils' Quality Learning Outcomes

Visual instructional resources play a vital role in enhancing pupils' quality learning outcomes, particularly at the primary school level where learners benefit from concrete and illustrative learning experiences. Visual resources include charts, pictures, posters, maps, models, flashcards, whiteboards, projectors, videos, and other graphic materials that support teaching and learning by appealing to pupils' sense of sight. The effective utilization of these resources helps simplify abstract concepts, sustain learners' attention, and improve comprehension and retention (Mayer, 2009; Akinleye, 2010).

In Port Harcourt Metropolis, Rivers State, the extent of utilization of visual resources in schools especially private primary schools varies considerably. Empirical studies indicate that basic visual resources such as chalkboards or whiteboards, charts, and textbooks are commonly available and frequently used, while more advanced visual technologies such as projectors, interactive boards, and instructional videos are less consistently utilized (Godfrey-Kalio & Osiri-Eme, 2021; Ogunleye, 2013). This suggested that although visual resources are present in many schools, their use is often limited to traditional and low-cost materials rather than modern visual instructional tools.

Research conducted in Rivers State by Godfrey-Kalio and Osiri-Eme (2021) revealed that teachers tend to rely heavily on static visual aids like charts and pictures, which are perceived as easier to use and require minimal technical expertise. While these resources positively support lesson clarity and pupils' understanding, the limited integration of dynamic visual media restricts the full pedagogical benefits of visual instruction (Ajayi & Yusuf, 2009). Consequently, pupils may not be adequately exposed to rich visual learning experiences that could further enhance their cognitive development and academic performance.

The utilization of visual resources has been shown to significantly influence pupils' quality learning outcomes by improving attention span, motivation, and concept mastery. Visual materials help pupils form mental images of learning content, making lessons more engaging and meaningful, especially in subjects such as science, social studies, and mathematics (Olube, 2015; Mayer & Moreno, 2003). In Port Harcourt schools where visual resources are effectively used, pupils demonstrate better participation and understanding compared to those taught mainly through verbal explanations.

However, several challenges limit the extent of effective utilization of visual resources in schools within the metropolis. These include inadequate funding to procure modern visual equipment, poor maintenance culture, irregular electricity supply, and insufficient teacher training on the integration of instructional media (Enekwe et al., 2021; Eze & Okeke, 2017). Even in schools where visual facilities are available, some teachers lack the pedagogical competence to incorporate them meaningfully into lesson delivery, resulting in underutilization or superficial use.

Furthermore, the gap between availability and utilization underscores a broader issue of instructional practice. While education policies in Nigeria emphasized the use of instructional materials to promote learner-centered teaching, implementation at the classroom level remains inconsistent (FRN, 2014). Without continuous professional development and institutional support, teachers may continue to favor conventional teaching methods over innovative visual-based instruction.

Difference in the Level of Utilization of Audio and Visual Resources on Pupils' Quality Learning Outcomes

The integration of instructional resources into classroom teaching has been widely acknowledged as essential for improving pupils' learning outcomes. Instructional resources especially the audio and visual materials serve to stimulate multiple senses, promote engagement and enhance memory and comprehension. However, the extent to which audio and visual resources are utilized differs significantly across school settings, often with visual resources being employed more frequently than audio tools. This disparity has inherent implications for pupils' quality learning outcomes, particularly within primary education systems in Nigeria and similar contexts.

Nonetheless, audio and visual instructional resources significantly enhance pupils' quality learning outcomes, but they differ in the ways they engage learners and support comprehension. Visual resources, such as charts, diagrams, flashcards, and videos, primarily engage pupils through the sense of sight. They help learners translate abstract concepts into concrete and observable forms, making complex ideas easier to understand and improving overall comprehension (Mayer, 2009). In contrast, audio resources including recorded instructions, language tapes, and narratives engage pupils through the sense of hearing. These materials strengthen auditory processing, enabling learners to follow instructions effectively and internalize lesson content through listening (Enekwe et al., 2021).

The two types of resources also differ in their impact on memory and retention. Visual resources provide cues that learners can recall more easily, supporting long-term retention of information (Mayer & Moreno, 2003). Audio resources, on the other hand, reinforce memory through repeated verbal exposure and listening, which helps pupils retain instructional content (Olube, 2015). In terms of motivation and engagement, visual resources capture attention with dynamic images and illustrations, particularly benefiting visual learners (Akinleye, 2010). Audio resources engage learners who respond better to sound-based instruction, maintaining interest through storytelling, verbal explanations, or music (Godfrey-Kalio & Osiri-Eme, 2021).

Both resources also differ in how they support real-life connections. Visual materials allow pupils to observe practical scenarios through videos, models, or diagrams, while audio materials provide verbal explanations that guide learners through procedures or language practice. When combined, audio and visual resources complement each other, enhancing

comprehension, retention, engagement, and critical thinking more effectively than either resource used alone (Mayer & Moreno, 2003; Olube, 2015). Overall, while both resources contribute positively to learning, they do so in ways that leverage different senses and learning styles, ensuring a more holistic and inclusive learning experience for pupils.

This difference in utilization levels has observable implications for learning outcomes. Visual resources are often easier for teachers to adopt because they align with traditional pedagogy: teachers can readily incorporate charts or displays into lectures without extensive training. Consequently, visual materials are more consistently used and contribute positively to pupils' learning, particularly in reinforcing conceptual understanding and facilitating recall (iResearch Nigeria, 2023). In contrast, the potential benefits of audio resources such as improving listening comprehension, oral language skills, and attention through rhythm or narrative are largely unrealized in many classrooms due to under usage.

The availability of audio-visual resources that combines both audio and visual elements (e.g., projectors, videos, multimedia presentations) remains especially low. Research in Nigerian primary schools revealed that multifunctional audio-visual tools are scarce, and when available they are often too complex for teachers to operate without professional development (Godfrey-Kalio & Osiri-Eme, 2021). However, the use of audio and visual tools presents its potential benefits on pupils learning outcomes.

International evidences have also highlighted disparities in the use of audio versus visual instructional media. For example, comparative studies in West African teaching contexts indicate that while visual learning materials are the baseline resource in many schools, audio-visual and purely audio tools face significant barriers to consistent use due to infrastructure, training, and availability limitations (Ronaldyn, 2022). The contextual pattern suggests a broader trend in many developing contexts: visual tools are more deeply embedded in classroom practice than audio or audio-visual alternatives. The result is that pupils may benefit more from sight-based reinforcement of lessons than from auditory pathways that remain underexploited.

METHODOLOGY

The study adopted a descriptive research design to determine the significant difference between the independent variable, the utilization of audio-visual resources, and the dependent variable, pupils' quality learning outcomes. The research focused on a population of 10 registered private primary schools in Port Harcourt Metropolis, Rivers State, comprising a total of 150 staff members. These schools were located in both PHALGA and OBALGA regions, and the population included school headteachers and class teachers, who served as respondents (Rivers State Ministry of Education, Planning Research and Statistics Department, 2023).

A sample of 50 participants was drawn from the population using a stratified random sampling technique. Fifty percent of respondents were selected from five private primary schools in PHALGA, while the remaining 50% were selected from five private primary schools in OBALGA, where private schools are densely located. This resulted in a total of ten schools, representing approximately 22% of the population. From each LGA, one headteacher and four class teachers from each school were selected, yielding a total of 25 respondents per LGA, and 50 respondents overall. School selection was not stratified by gender, as all schools were mixed-gender day schools. Factors such as population density or the presence of secondary schools within the premises were noted but did not influence school selection.

Data collection was conducted using a two-section questionnaire titled “Utilization of Audio-Visual Resources and Pupils’ Quality Learning Outcomes Questionnaire (UAVRPQLOQ)”. Section ‘A’ captured school demographics, including the name of the school, LGA, and staff designation, while Section ‘B’ focused on the study variables. A 4-point modified Likert scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE), and Very Low Extent (VLE) was used to structure responses. The criterion mean was set at 2.50, and the questionnaire included 12 items across three research question clusters.

The instrument was validated by three of Educational Management whose feedback was incorporated prior to administration. Reliability was established through a test-retest procedure involving ten respondents over a two-week interval, with a reliability index of .891 calculated using Pearson’s Product Moment Correlation.

For administration, the researcher and three trained assistants distributed 50 questionnaires over two weeks. All 50 copies were retrieved and analyzed. Data analysis employed descriptive statistics, including means and standard deviations, while t-tests were conducted to test hypotheses at a .05 significance level, using the criterion mean of 2.50 for interpretation.

RESULTS

Research Question 1: What is the extent to which audio resources are utilized in schools for pupils’ quality learning outcomes in Port Harcourt Metropolis, Rivers State?

Table 1: Mean Ratings and Standard Deviation on the Extent audio resources are utilized in schools for pupils’ quality outcomes

S/N	Items	Status				Mean set	Decision
		Head Teacher (N=10)		Class Teacher (N=40)			
		Mean	SD	Mean	SD		
1.	Recorders and speakers become very useful tools in the classroom for either teaching or learning.	3.70	0.48	3.35	0.77	3.53	High Extent
2.	Audio resources such as Mp3/phonograph aid in teaching language, pronunciation and intonation better.	3.40	0.97	3.23	0.77	3.31	High Extent
3.	Non-projected materials which do not require lenses, light sources or electricity to function slows down learning rate.	2.90	1.10	3.00	0.88	2.95	High Extent
4.	Audio resources are restrictive unlike in the case of posters, graphs and slides due to lack of sound/screen.	3.10	0.99	3.33	0.66	3.21	High Extent
Grand Mean		3.28	0.89	3.23	0.77	3.25	High Extent

The first research question addressed the utilization of specific audio resources in the classroom. The findings reveal that recorders and speakers are perceived as very useful tools for teaching and learning, with a mean rating of 3.70 by head teachers and 3.35 by class teachers. This indicates a high extent of utilization, as reflected in the decision to rank it first among the items assessed.

Similarly, audio resources such as Mp3/phonograph were considered beneficial for teaching language, pronunciation, and intonation, earning a mean rating of 3.40 by head teachers and 3.23 by class teachers. This signifies a high extent of utilization, as it ranked second among the items assessed.

However, it's noteworthy that non-projected materials, which do not require additional equipment like lenses or electricity, were perceived to slow down the learning rate. Despite this perception, they still received relatively high mean ratings of 2.90 by head teachers and 3.00 by class teachers, indicating a moderate level of utilization compared to other resources assessed.

On the other hand, the study found that audio resources are perceived as somewhat restrictive compared to other instructional materials like posters, graphs, and slides due to their lack of visual elements. Despite this limitation, they still received relatively high mean ratings of 3.10 by head teachers and 3.33 by class teachers, suggesting a considerable extent of utilization.

On the whole, the grand mean of the items assessed indicated a high extent of utilization of audio resources in the classroom, with a mean rating of 3.28 by head teachers and 3.23 by class teachers. This underscores the importance of audio resources in enhancing teaching and learning experiences, despite some perceived limitations compared to other instructional materials.

Research Question 2: What is the extent to which visual resources are utilized in schools for pupils' quality outcomes in Port Harcourt Metropolis, Rivers State?

Table 4: Mean Ratings and Standard Deviation on the Extent visual resources are utilized in schools for pupils' quality outcomes

S/N	Items	Status				Mean set	Decision
		Head Teacher (N=10)		Class Teacher (N=40)			
		Mean	SD	Mean	SD		
5.	Television as a visual resource positively impact on pupils' grades.	3.10	0.88	3.25	0.90	3.18	High Extent
6.	The impact of frequent use of visual aids like educational posters is preferable to that of audio cassettes	3.10	0.88	3.50	0.51	3.30	High Extent
7.	Visual aids are most effective because they motivate the learners' interest when they see what they hear.	3.30	0.95	3.60	0.50	3.45	High Extent
8.	A host of other visual technology can be used to boost understanding/retention such as cartoons, films, slides, etc.	3.60	0.70	3.53	0.68	3.56	High Extent
Grand Mean		3.28	0.85	3.47	0.65	3.37	High Extent

The second research question aimed to investigate the extent of visual resource utilization in private primary schools in Port Harcourt Metropolis, Rivers State, Nigeria, and its impact on pupils' quality outcomes. The analysis involved assessing various visual resources and their perceived effectiveness as reported by both head teachers and class teachers.

The findings indicate a generally high extent of utilization of visual resources in the classroom, as reflected in the mean ratings provided by both head teachers and class teachers. Television, considered as a visual resource, was reported to positively impact pupils' grades, albeit ranking fourth among the items assessed. This suggests that while television may have some impact, it might not be as preferred or as frequently utilized compared to other visual aids.

Educational posters were perceived favorably, with a mean rating of 3.10 by head teachers and 3.50 by class teachers, ranking third among the items assessed. This indicates a high extent of utilization and preference for educational posters over audio cassettes, highlighting their effectiveness in enhancing learning outcomes.

Visual aids, in general, were deemed highly effective in motivating learners' interest, as indicated by a mean rating of 3.30 by head teachers and 3.60 by class teachers, ranking second among the items assessed. This underscores the importance of visual stimulation in facilitating comprehension and retention among pupils.

Moreover, a variety of visual technologies, including cartoons, films, and slides, were considered valuable tools for boosting understanding and retention, earning the highest mean rating of 3.60 by head teachers and 3.53 by class teachers. This suggests a strong preference for diverse visual aids to cater to different learning styles and preferences among students.

Generally, the grand mean of the items assessed indicates a high extent of utilization of visual resources in the classroom, with a mean rating of 3.28 by head teachers and 3.47 by class teachers. This underscores the significance of visual aids in enhancing teaching and learning experiences, promoting engagement, comprehension, and retention among pupils in private primary schools in Port Harcourt Metropolis.

Research Question 3: What is the difference in the level of utilization of audio and visual resources in schools for pupils' quality outcomes in Port Harcourt Metropolis, Rivers State?

Table 5: Mean Ratings and Standard Deviation on the Extent of level of utilization of audio and visual resources in schools for pupils' quality outcomes

S/N	Items	Status				Mean set	Decision
		Head Teacher (N=10)		Class Teacher (N=40)			
		Mean	SD	Mean	SD		
9.	Cartoon Animations are more effective than audio tapes in the teaching and learning processes.	3.40	0.70	3.35	0.83	3.38	High Extent
10.	Use of videos indiscriminately or unsupervised could portend danger to learners either at home or in the class.	3.60	0.52	3.15	0.92	3.38	High Extent
11.	Computers and televisions provide screen time for learners better than speakers and auditory tapes.	2.90	1.20	3.03	0.86	2.96	High Extent
12.	Cassettes and tapes are old-fashioned and can only achieve little as compared to screens which boost logical reasoning.	3.10	1.20	3.18	0.78	3.14	High Extent
Grand Mean		3.25	0.90	3.18	0.85	3.21	High Extent

The third research question aimed to explore the differences in the utilization levels of audio and visual resources in private primary schools in Port Harcourt Metropolis, Rivers State, Nigeria, and their impact on pupils' quality outcomes. The analysis involved assessing various aspects of audio and visual resource utilization, as reported by both head teachers and class teachers.

The findings indicate a high extent of utilization for both audio and visual resources, with mean ratings reflecting their perceived effectiveness in enhancing teaching and learning processes. Cartoon animations were considered highly effective, ranking first among the items assessed, with a mean rating of 3.40 by head teachers and 3.35 by class teachers. This suggests a strong preference for visual stimuli, such as cartoons, in facilitating learning over traditional audio tapes.

However, concerns were raised regarding the indiscriminate or unsupervised use of videos, which could pose dangers to learners, both at home and in the classroom. Despite this concern, videos were still perceived as effective educational tools, ranking first among the items assessed, with a mean rating of 3.60 by head teachers and 3.15 by class teachers.

Furthermore, computers and televisions were viewed as providing valuable screen time for learners, albeit ranking fourth among the items assessed. This indicates a slightly lower extent of utilization compared to other resources, possibly due to limited access or availability in some educational settings.

Similarly, while cassettes and tapes were perceived as somewhat old-fashioned, they were still considered valuable resources for learning, ranking third among the items assessed. Screens, on the other hand, were seen as more conducive to boosting logical reasoning, reflecting a preference for visual stimuli over purely auditory ones.

Overall, the grand mean of the items assessed indicates a high extent of utilization for audio than visual resources, with a mean rating of 3.25 by head teachers and 3.18 by class teachers for audio resources, and 3.18 by head teachers and 3.21 by class teachers for visual resources. This suggests a relatively balanced utilization of both types of resources, highlighting the importance of incorporating diverse teaching aids to cater to different learning styles and preferences among pupils in private primary schools in Port Harcourt Metropolis.

Test for Hypotheses

Hypothesis One: There is no significant difference in the mean ratings of head teachers and class teachers on the extent audio resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.

Table 4: t-test of Significant difference in the mean ratings of head teachers and class teachers on the extent audio resources are utilized in schools for pupils' quality learning outcomes

Position	N	Mean	SD.	Df	t-test	Sig.	Decision
Head Teacher	10	3.28	0.89	48	.178	.859	Not Significant
Class Teacher	40	3.23	0.77				

The t-test results, as presented in Table 4, indicate that the difference in mean ratings between head teachers and class teachers was not statistically significant. Specifically, the mean rating for head teachers was 3.28 with a standard deviation of 0.89, while for class teachers, the mean rating was 3.23 with a standard deviation of 0.77. The degrees of freedom (df) were 48, and the calculated t-test value was 0.178.

The significance level (Sig.) was reported as 0.859, indicating that the p-value associated with the t-test was greater than the predetermined significance level (typically 0.05). As a result, the difference between the mean ratings of head teachers and class teachers on the extent of audio resource utilization was deemed not significant (NS).

In practical terms, this implies that both head teachers and class teachers generally hold similar perceptions regarding the utilization of audio resources in private primary schools. Despite potential variations in individual opinions, the overall consensus suggests that there is no significant discrepancy between the views of head teachers and class teachers on this matter.

Hypothesis Two: There is no significant difference in the mean ratings of head teachers and class teachers on the extent visual resources are utilized in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State

Table 5: t-test of Significant difference in the mean ratings of head teachers and class teachers on the extent visual resources are utilized in schools for pupils' quality learning outcomes

Position	N	Mean	Std.	Df	t-test	Sig.	Decision
Head Teacher	10	3.28	0.85	48	-.777	.441	Not Significant
Class Teacher	40	3.47	0.65				

The t-test results, presented in Table 5, indicate that there was no statistically significant difference in the mean ratings between head teachers and class teachers. The mean rating for head teachers was 3.28 with a standard deviation of 0.85, while for class teachers, the mean rating was slightly higher at 3.47 with a standard deviation of 0.65. The degrees of freedom (df) were 48, and the calculated t-test value was -.777.

The significance level (Sig.) was reported as 0.441, which is higher than the predetermined significance level (typically 0.05). This suggests that the p-value associated with the t-test was greater than the threshold for significance, leading to the conclusion that the observed difference in mean ratings between head teachers and class teachers was not statistically significant (NS).

In practical terms, this implies that both head teachers and class teachers generally share similar perceptions regarding the utilization of visual resources in private primary schools. Despite potential variations in individual opinions, the overall consensus suggests that there is no significant discrepancy between the views of head teachers and class teachers on this matter.

Hypothesis Three: There is no significant difference in the mean ratings of head teachers and class teachers on the level of utilization of audio and visual resources in schools for pupils' quality learning outcomes in Port Harcourt Metropolis, Rivers State.

Table 6: t-test of Significant difference in the mean ratings of head teachers and class teachers on the level of utilization of audio and visual resources in schools for pupils' quality learning outcomes

Position	N	Mean	SD.	Df	t-test	Sig.	Decision
Head Teacher	10	3.25	0.90	48	0.230	0.819	Not Significant
Class Teacher	40	3.18	0.85				

The t-test results, as presented in Table 10, indicate that there was no statistically significant difference in the mean ratings between head teachers and class teachers. For head teachers, the mean rating was 3.25 with a standard deviation of 0.90, while for class teachers; the mean rating was slightly lower at 3.18 with a standard deviation of 0.85. The degrees of freedom (df) were 48, and the calculated t-test value was .230.

The significance level (Sig.) was reported as .819, which is higher than the predetermined significance level (typically .05). This suggests that the p-value associated with the t-test was greater than the threshold for significance, leading to the conclusion that the observed difference in mean ratings between head teachers and class teachers was not statistically significant (NS). In practical terms, this implies that both head teachers and class teachers generally share similar perceptions regarding the level of utilization of audio and visual resources in private primary schools. Despite potential variations in individual opinions, the overall consensus suggests that there is no significant discrepancy between the views of head teachers and class teachers on this matter.

DISCUSSION OF FINDINGS

Utilization of Audio Resources

The first research question addressed the utilization of specific audio resources in the classroom. The study found a high extent of utilization of audio resources such as recorders, speakers, and Mp3/phonograph aids in the classroom. Despite some limitations compared to visual resources, audio resources were perceived as beneficial for teaching and learning. The findings of the corresponding hypothesis showed that there was no significant difference in the mean ratings between head teachers and class teachers regarding the extent of audio resource utilization. Both groups generally held similar perceptions about the utilization of audio resources.

Firstly, research indicates that audio resources can enhance student engagement and comprehension. For example, a study by Mayer (2001) found that audio aids, when integrated into instructional materials, can improve students' understanding of complex concepts by providing additional auditory explanations that complement visual stimuli. This finding supports the notion that audio resources serve as valuable supplements to traditional teaching methods, catering to different learning styles and preferences.

Moreover, the study's finding that both head teachers and class teachers held similar perceptions regarding the utilization of audio resources is consistent with the literature on collaborative decision-making in educational settings. Research by Leithwood and Jantzi (2000) suggested that effective school leadership involves fostering a shared vision among staff members, wherein teachers and administrators collaborate to identify and implement instructional strategies that promote student learning. In the context of audio resource utilization, this collaborative approach likely contributes to a cohesive understanding of the benefits and challenges associated with integrating audio aids into classroom practices.

Additionally, the study's identification of limitations compared to visual resources resonates with existing literature on multimedia learning. While audio resources offer unique advantages, such as facilitating verbal explanations and auditory reinforcement, they may be less effective in conveying complex spatial or visual information (Mayer, 2005). This finding underscores the importance of employing a diverse range of instructional materials to accommodate various learning objectives and modalities.

Furthermore, the absence of a significant difference in perceptions between head teachers and class teachers regarding audio resource utilization echoes research on leadership efficacy and teacher autonomy. Studies by Hallinger and Heck (1998) have emphasized the role of distributed leadership in empowering teachers to make informed decisions about instructional practices. In environments where administrators support teacher autonomy and professional judgment, educators are more likely to collaborate and share similar perspectives on pedagogical approaches, including the integration of audio resources.

Utilization of Visual Resources

The second research question aimed to investigate the extent of visual resource utilization in private primary schools in Port Harcourt Metropolis, Rivers State, Nigeria, and its impact on pupils' quality outcomes. It was revealed that Visual resources, including educational posters, videos, and cartoons, were highly utilized and perceived as effective in enhancing pupils' learning outcomes. The findings emphasized the importance of diverse visual aids in promoting engagement and comprehension among students. The findings of the corresponding hypothesis showed that there was no significant difference in the mean ratings between head teachers and class teachers concerning the extent of visual resource utilization. Both groups shared similar perceptions about the utilization of visual resources.

Research has demonstrated the cognitive benefits of incorporating visual aids into educational settings. According to Mayer's cognitive theory of multimedia learning (2005), presenting information through both visual and verbal channels can enhance learning outcomes by leveraging dual processing systems in the brain. Visual resources provide supplementary information and cues that support students' understanding of complex concepts, making learning more accessible and enjoyable. This aligns with the study's finding that visual resources were perceived as effective in enhancing pupils' learning outcomes, indicating their significant role in facilitating comprehension and retention.

Furthermore, the study's revelation that both head teachers and class teachers shared similar perceptions regarding visual resource utilization resonates with recent literature on collaborative decision-making and instructional leadership. Effective school leadership involves fostering a shared vision among stakeholders and empowering teachers to play an active role in decision-making processes (Spillane et al., 2001). In environments where administrators prioritize teacher autonomy and collaboration, educators are more likely to recognize the value of visual resources and implement them effectively to support student learning.

Moreover, the study's emphasis on the utilization of diverse visual aids aligns with recent trends in educational technology and multimedia learning. With advancements in digital technologies and online resources, educators have access to a wide range of visual materials, including interactive simulations, virtual reality experiences, and multimedia presentations. Research by Clark and Mayer (2016) suggested that well-designed visual resources can promote active learning, critical thinking, and problem-solving skills among students, fostering deeper levels of engagement and understanding.

Additionally, the absence of a significant difference in perceptions between head teachers and class teachers regarding visual resource utilization underscores the importance of collaborative leadership and shared decision-making in educational contexts. Recent studies have emphasized the role of distributed leadership in promoting a culture of trust, collaboration, and collective responsibility among school staff (Harris et al., 2013). Therefore, involving teachers in

discussions on instructional practices and resource allocation, administrators leverage their expertise and insights to maximize the effectiveness of visual aids in supporting student learning.

Utilization of both Audio and Visual Resources

The third research question aimed to explore the differences in the utilization levels of audio and visual resources in private primary schools in Port Harcourt Metropolis, Rivers State, Nigeria, and their impact on pupils' quality outcomes. The findings revealed that both audio and visual resources were utilized to a high extent in the classroom. While visual resources were preferred for their motivational aspect, audio resources still held significance, particularly in facilitating language learning. The findings of the corresponding hypothesis showed that there was no significant difference in the mean ratings between head teachers and class teachers regarding the level of utilization of both audio and visual resources. Both groups generally shared similar perceptions about the utilization of audio-visual resources.

Firstly, the study's revelation that both audio and visual resources were utilized to a high extent in the classroom aligns with recent trends in multimedia learning and educational technology. With advancements in digital tools and resources, educators have access to a wealth of audio and visual materials that can be seamlessly integrated into teaching and learning activities. Research by Mayer (2009) suggested that combining auditory and visual information can enhance students' cognitive processing and improve learning outcomes by providing multiple pathways for information encoding and retrieval.

Moreover, the finding that visual resources were preferred for their motivational aspect resonates with recent literature on the role of visual stimuli in promoting student engagement and interest. Studies have shown that visually stimulating materials, such as educational posters, videos, and interactive multimedia presentations, can capture students' attention and promote positive learning environment (Moreno & Mayer, 2007). Through effectively leveraging the motivational power of visual resources, educators can enhance students' intrinsic motivation and promote active participation in learning activities.

Furthermore, the study's recognition of the significance of audio resources, particularly in facilitating language learning, aligns with recent research on the benefits of auditory stimulation in educational settings. Audio resources, such as recordings, podcasts, and language learning apps, provide valuable auditory input that supports language acquisition and pronunciation skills (Wong, 2018). The incorporation of audio resources into language instruction, educators create immersive learning experiences that enhance students' linguistic competence and fluency.

Additionally, the absence of a significant difference in perceptions between head teachers and class teachers regarding the utilization of audio-visual resources underscores the importance of collaborative decision-making and shared leadership in educational contexts. Recent literature emphasizes the value of involving stakeholders in discussions about instructional practices and resource allocation to ensure alignment with pedagogical goals and student needs (Hargreaves & Fullan, 2012). Though the promoting a culture of collaboration and collective responsibility, school leaders can promote a shared understanding of the benefits and challenges associated with audio-visual resource utilization, leading to more cohesive and effective implementation strategies.

CONCLUSION

The study on the utilization of audio-visual resources in private primary schools in Port Harcourt Metropolis, Rivers State, Nigeria, has provided valuable insights into the challenges, perceptions, and proposed solutions regarding the integration of multimedia tools into classroom instruction. The findings reveal that both audio and visual resources are utilized to a high extent, with educators recognizing their significance in enhancing pupils' learning outcomes. Despite facing challenges such as limited funding, inadequate technical knowledge and power supply issues, educators remain committed to optimizing the use of audio-visual resources to support student learning.

Importantly, the study highlights the importance of collaborative decision-making and shared perceptions among school stakeholders regarding the utilization of audio-visual resources. Head teachers and class teachers demonstrate similar views on the benefits of utilization of audio-visual resources in teaching and learning processes.

Recommendations

Based on the findings of this study and the conclusions drawn, the following recommendations were made:

- Educators should participate in ongoing professional development programs to enhance digital literacy skills and proficiency in utilizing audio-visual resources effectively.
- Policymakers should allocate adequate funding and resources to support the procurement, maintenance, and updating of audio-visual equipment and materials in schools.
- Students should take active role in utilizing audio-visual resources for learning by engaging with multimedia materials, participating in interactive activities, and seeking clarification or additional information as needed.

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