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The Place of Modern Instructional Materials in Teaching and Learning of Primary Education in Anambra State

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ABSTRACT

This study examines the place of modern instructional materials in the teaching and learning of primary education in Anambra State, Nigeria. The study employed a descriptive survey design in Anambra State, Nigeria, targeting lecturers in tertiary institutions. Data collection used a validated questionnaire distributed via Google Forms, yielding 50 responses. Analysis involved calculating weighted mean scores, ensuring robustness. Google Survey facilitated efficient data management, enhancing credibility. Rigorous validation and reliability testing ensured research integrity, adhering to best practices in educational research. The findings reveal that modern instructional materials such as audio and video recorders, projectors and digital boards, digital cameras and scanners, as well as maps and charts, are widely available in primary education classrooms. However, their effective integration into pedagogical practices varies among educators, with some demonstrating regular use while others face challenges in incorporating these materials into their teaching. Despite these challenges, the study highlights the positive influence of modern instructional materials on students' learning outcomes, including improved comprehension of difficult concepts, increased interest and retention in subjects, and enhanced overall learning experiences.

Keywords: Modern instructional materials; Teaching; Learning; Primary education

1 Introduction

In the dynamic landscape of primary education, the integration of modern instructional materials has become increasingly vital in fostering effective teaching and enhancing student learning experiences. Modern instructional materials refer to a diverse range of resources and tools utilized in educational settings to enhance teaching and learning experiences (Chigbu

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& Adamu, 2023).[8] These materials leverage technology, multimedia, and interactive elements to engage students, facilitate comprehension, and promote active participation. Examples include audiovisual aids like projectors and digital boards, digital resources such as interactive software and online simulations, and hands-on manipulatives (Issah et al, 2024).[16] Modern instructional materials cater to diverse learning styles, foster critical thinking skills, and support personalized learning, ultimately contributing to improved academic outcomes and the holistic development of learners in contemporary educational environments.

Modern instructional materials play a crucial role in addressing the diverse learning needs of primary school students. They offer educators innovative ways to deliver content, cater to different learning styles, and create dynamic learning environments that stimulate curiosity and critical thinking (Ile & Ikechukwu, 2020).[15] By incorporating multimedia resources such as videos, interactive software, and digital simulations, teachers can bring abstract concepts to life and make learning more accessible and engaging for students (Artal-Sevil et al, 2018).[5] Furthermore, modern instructional materials promote active learning by encouraging students to participate actively in the learning process. Interactive whiteboards, digital games, and hands-on manipulatives provide opportunities for students to explore, experiment, and collaborate with their peers, fostering a deeper understanding of concepts and promoting the development of essential skills such as problem-solving and creativity (Hsia et al, 2021).[12]

The integration of modern instructional materials has transformed teaching practices in primary education classrooms. Educators are no longer confined to traditional chalk-and-talk methods but can leverage a wide array of resources to deliver engaging and interactive lessons. Audiovisual aids such as projectors and digital boards enable teachers to present information in a visually stimulating manner, while digital textbooks and online resources offer customizable and interactive learning experiences tailored to individual student needs (Tang et al, 2020).[26] Moreover, modern instructional materials facilitate differentiated instruction, allowing teachers to adapt their teaching strategies to accommodate diverse learning styles and abilities. For example, teachers can use multimedia presentations, audio recordings, and interactive quizzes to provide additional support for struggling students or challenge advanced learners (Kim et al, 2019).[18] This personalized approach to instruction promotes inclusivity and ensures that all students have the opportunity to succeed.

The use of modern instructional materials has been shown to have a positive impact on student learning outcomes in primary education. Research indicates that students who are exposed to multimedia resources and interactive learning materials demonstrate higher levels of engagement, motivation, and academic achievement (Dunn & Kennedy, 2019).[10] For example, a study conducted by Smeda et al, (2014)[25] found that primary school students who used digital storytelling tools to create multimedia presentations showed significant improvements in reading comprehension and language skills. Furthermore, modern instructional materials facilitate deeper learning and long-term retention of knowledge by providing students with opportunities for active exploration and discovery. Hands-on activities, virtual simulations, and interactive games encourage students to apply their knowledge in real-world contexts, reinforcing concepts and promoting deeper understanding (Braun, 2019).[7] As a result, students are better equipped to transfer their learning to new situations and demonstrate mastery of essential concepts and skills.

Despite the numerous benefits of modern instructional materials, their effective integration into primary education classrooms is not without challenges. Limited access to technology, inadequate training for teachers, and digital divide issues are significant barriers that hinder the widespread adoption of these resources, particularly in resource-constrained settings (Artal-Sevil et al, 2018).[5] The study therefore is crucial due to several reasons. Firstly, Anambra State, like many regions in Nigeria, faces challenges in its educational system, including resource con-

straints and outdated teaching methods. Although the research by Ile and Ikechukwu (2020)[15] highlighted the importance of modern instructional materials in enhancing student interest and engagement, which is particularly pertinent in regions with limited resources. Secondly, while there is a growing emphasis on integrating technology into education globally, there is a lack of more comprehensive studies specifically focusing on Anambra State.

Moreover, understanding the current utilization and impact of modern instructional materials in Anambra State is essential for informed decision-making and policy formulation. Without such insights, educational stakeholders may miss opportunities to improve teaching practices and student learning outcomes. Detrich and Lewis (2013)[9] emphasized the importance of evidence-based interventions in education, underscoring the necessity of empirical research to guide educational reforms and initiatives.

Research Objectives

1. To identify the relevance of modern instructional materials in primary education classroom.
2. To find out some of the available modern instructional materials used in primary education classroom.
3. To determine the extent to which lecturers use modern instructional materials.

Research Questions

The following research questions guided the study;

1. What are the available modern instructional materials used in primary education classroom?
2. To what extent do lecturers use the modern instructional materials in the primary education classroom?
3. To what extent does the utilization of these modern instructional materials impact on students' learning?

2 Methods

The study employed a descriptive survey research design conducted in Anambra State, Nigeria, targeting lecturers in tertiary institutions teaching primary education, early childhood education, and related courses. Data collection utilized a questionnaire via Google Forms, featuring two sections: personal data and response guide. Before distribution, the questionnaire underwent validation by educational psychology experts and reliability testing via the test-retest method, yielding a high correlation coefficient of 0.88. The questionnaire link was shared via WhatsApp, Instagram, and other platforms, garnering 50 responses within four weeks. Data analysis involved calculating weighted mean scores and standard deviations, with an acceptance criterion set at a mean of 2.50. Items scoring 2.5 and above were accepted, while those below 2.4 were rejected, ensuring robustness in the research findings.

Additionally, the Google Survey process facilitated efficient data collection, organization, and analysis. After the survey closure, data were exported to an Excel spreadsheet for further analysis and then imported into SPSS software for statistical examination, enabling researchers to explore trends, relationships, and patterns in the data. This streamlined approach contributed to informed decision-making in research endeavors, enhancing the study's credibility and reliability. The use of a rigorous validation process and reliability testing ensured the quality and integrity of the research instrument, further bolstering the study's validity and trustworthiness. Overall, the study methodology adhered to best practices in research design and data collection, enhancing the study's rigor and contributing to the advancement of knowledge in the field of education.

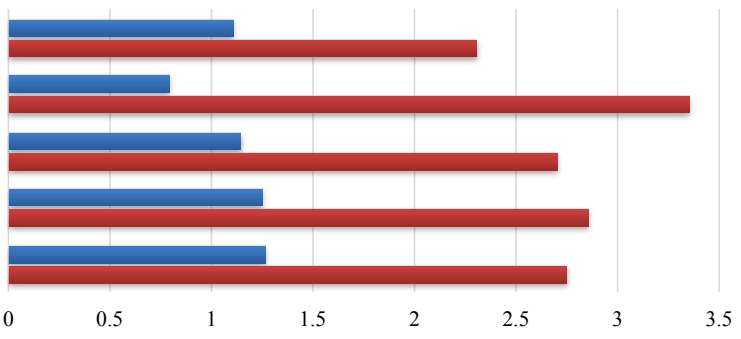
3 Results

Research Question 1: What are the available modern instructional materials used in primary education classroom?

Figure 1 showed the available modern instructional materials used in primary education classroom. The assessment indicates the perceived usefulness of various modern instructional materials in primary education classrooms. Maps and charts received the

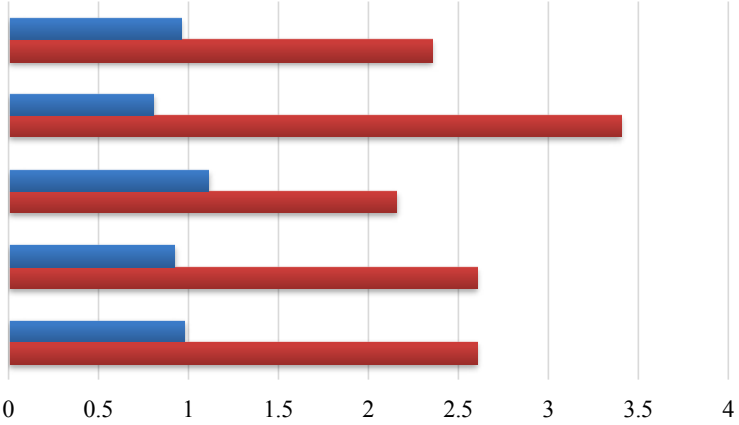
highest acceptance score with a mean of 3.35 (SD = 0.79), suggesting widespread agreement on their effectiveness. Projectors and digital boards, as well as audio and video recorders, were also well-received, with means of 2.85 (SD = 1.25) and 2.75 (SD = 1.26) respectively. Digital cameras and scanners garnered a moderate acceptance score of 2.70 (SD = 1.14). However, podcast and camcorder devices fell below the acceptance threshold, with a mean of 2.30 (SD = 1.1), indicating a lack of consensus on their utility in primary education classrooms.

Research Question 2: To what extent do lecturers use the modern instructional materials in the primary education classroom?



	Audio and Video recorders are modern instructional materials used in primary education classroom	Projectors and digital board are available modern instructional materials used in primary education classroom	Digital camera and scanner are available modern instructional materials used in primary education classroom	Maps and charts are available modern instructional materials used in primary education classroom	Podcast and camcorder devices are available modern instructional materials used in primary education classroom
Standard deviation	1.26	1.25	1.14	0.79	1.1
Mean	2.75	2.85	2.7	3.35	2.3

Figure 1: Mean and standard deviation on available modern instructional materials used in primary education classroom



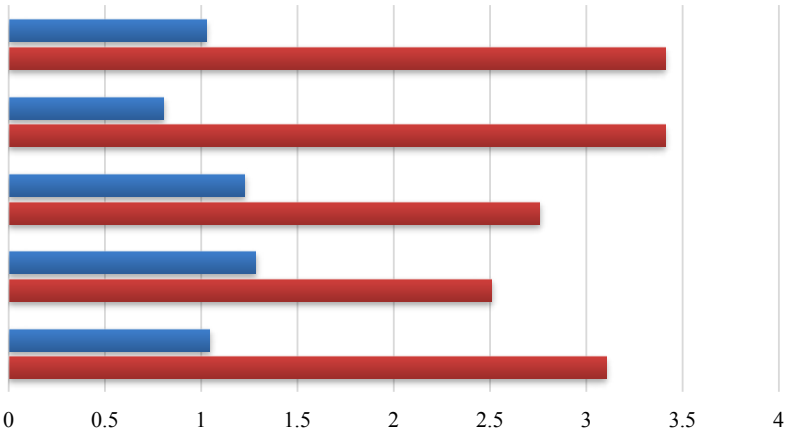
	Lecturers use audio and video recorders regularly in primary education classroom	Lecturers use projectors and digital board in primary education classroom	Lecturers use digital camera and scanner often in primary education classroom	Lecturers use maps and charts in primary education classroom	Lecturers use podcast and camcorder devices regularly in primary education classroom
Standard deviation	0.97	0.92	1.11	0.8	0.96
Mean	2.6	2.6	2.15	3.4	2.35

Figure 2: Mean and standard deviation on how lecturers use the modern instructional materials in the primary education classroom

Figure 2 showed the evaluation assesses the frequency of usage of various instructional materials by lecturers in primary education classrooms. Maps and charts received the highest acceptance score with a mean of 3.40 (SD = 0.8), indicating their regular use. Audio and video recorders, as well as projectors and digital boards, were also accepted, with means of 2.60 (SD = 0.97) and 2.60 (SD = 0.92) respectively, reflecting their regular utilization. However, digital cameras and scanners fell below the acceptance threshold, with a mean of 2.15 (SD = 1.11), suggesting infrequent usage. Similarly, podcast and camcorder devices were rejected, with a mean of 2.35 (SD = 0.96), indicating limited usage in classrooms

Research Question 3: To what extent does the utilization of modern instructional materials influence students' learning?

Figure 3 showed the assessment evaluates the perceived benefits of using modern instructional materials. Results indicate widespread acceptance of their effectiveness. Use of modern instructional materials is seen to promote easy understanding of difficult concepts (Mean = 3.10, SD = 1.04), improve student abilities and interests (Mean = 2.50, SD = 1.28), and enhance learning and assimilation (Mean = 2.75, SD = 1.22). Moreover, their use facilitates retention of facts (Mean = 3.40, SD = 0.8) and encourages experimentation and discovery (Mean = 3.40, SD = 1.02), underscoring their value in enriching the learning experience in computer science education.



	Use of modern instructional materials promotes easy understanding of difficult concepts in computer programming class	Regular use of modern instructional materials improve student's abilities, aptitudes and interest in human computer interaction subject	The use of audio-visual aids while teaching improves learning and assimilation of database systems	Educators use of modern instructional materials promotes students retention of facts about theory of computing	Use of modern instructional materials gives room for experimentation and discovery of new information in artificial intelligence
Standard deviation	1.04	1.28	1.22	0.8	1.02
Mean	3.1	2.5	2.75	3.4	3.4

Figure 3: Mean and standard deviation on how the utilization of modern instructional materials influence students' learning

4 Discussion of Findings

Research question 1 sought to find out the available modern instructional materials used in primary education classroom. Based on the findings, it was observed that in the realm of modern instructional materials used in primary education classrooms, a variety of tools have emerged to enhance teaching and learning experiences. Among these are audio and video recorders, projectors and digital boards, digital cameras and scanners, as well as maps and charts. Audio and video recorders serve as invaluable aids in capturing instructional content, allowing for later review and reinforcement of concepts. They provide a dynamic means of engaging students through mul-

timedia presentations and facilitating differentiated instruction (Wahyuni et al, 2024).[27] Similarly, projectors and digital boards offer interactive visual displays that cater to diverse learning styles, enabling teachers to illustrate complex concepts with clarity and interactivity (Al-Faki & Khamis, 2014).[2] On the other hand, digital cameras and scanners provide opportunities for hands-on learning and exploration, allowing students to document their observations and creations while fostering creativity and critical thinking skills (Olugbade, 2023).[22] Meanwhile, maps and charts serve as essential tools for spatial understanding and geographical literacy, offering visual representations of data and concepts that enhance comprehension and retention (Idiong et al, 2019).[14] In contrast, a study by Omosekejimi et al, (2018)[23] found that while digital technologies like projectors and digital boards are widely available in Nigerian primary education classrooms, their effective integration into pedagogical practices remains limited. This finding highlights the importance of ongoing professional development and support for educators to harness the full potential of modern instructional materials.

Research question 2 sought to find out how lecturers use the modern instructional materials in the primary education classroom. The results revealed that audio and video recorders are frequently employed by lecturers to enhance teaching and learning experiences. These tools enable instructors to record lessons, provide multimedia content, and facilitate interactive learning opportunities (Khamparia & Pandey, 2018).[17] Similarly, projectors and digital boards are commonly utilized by lecturers to deliver visual presentations, display multimedia content, and engage students in interactive learning activities (Krusche et al, 2020).[19] In contrast, the utilization of maps and charts by lecturers in primary education classrooms appears to be less prevalent. A study by Ogunwuyi (2022)[21] found that while maps and charts are available in classrooms, their integration into instructional practices by lecturers is limited. Lecturers tend to rely more heavily on traditional methods of instruction rather than incorporating these visual aids to enhance learning experiences. This finding is supported by a related study conducted by Ng'eno (2015),[20] which revealed that lecturers often face challenges in effectively integrating maps and charts into their teaching due to a lack of training and resources. Despite recognizing the potential benefits of these instructional materials, lecturers may struggle to incorporate them into their pedagogical approaches without adequate support and professional development opportunities.

Research question 3 dealt with utilization of these modern instructional materials influence students' learning. The utilization of modern instructional materials in classrooms significantly influences students' learning experiences and outcomes across various subjects. For instance, in computer programming classes, the use of modern instructional materials, such as interactive software and programming tools, promotes easy understanding of complex concepts (Guo, 2018).[11] This finding is supported by a related study conducted by Altin & Saracaloğlu, 2018),[4] which emphasized that the integration of modern instructional materials enhances students' comprehension and application of programming principles. In contrast, while discussing human-computer interaction subjects, regular use of modern instructional materials has been shown to improve students' abilities, aptitudes, and interest in the subject matter (Renzulli & Dai, 2014).[24] This finding aligns with the results of a study by Alenezi (2020),[1] which highlighted that exposure to interactive learning environments facilitated by modern instructional materials fosters student engagement and motivation in human-computer interaction courses. Similarly, the use of audio-visual aids during teaching sessions has been found to enhance the learning and assimilation of database systems among students (Bagila et al, 2019).[6] This result corroborates findings from previous research by Hung and Chen (2018),[13] which demonstrated that multimedia presentations and visual representations of database concepts contribute to improved comprehension and retention among learners. Moreover, educators' utilization of modern instructional materials promotes students' retention

of facts about the theory of computing (Al-Husaeni et al, 2024).[3] This outcome underscores the importance of incorporating visual aids, simulations, and interactive learning activities to reinforce theoretical concepts in computer science education.

5 Conclusion

In conclusion, this study sheds light on the crucial role of modern instructional materials in the teaching and learning of primary education in Anambra State, Nigeria. Through an exploration of the extent of utilization and the impact on students' learning experiences, several key findings have emerged. Firstly, it is evident that modern instructional materials such as audio and video recorders, projectors and digital boards, digital cameras and scanners, as well as maps and charts, are widely available in primary education classrooms. However, their effective integration into pedagogical practices varies among educators.

Secondly, while some lecturers demonstrate regular use of modern instructional materials, particularly audio and video recorders and projectors, there is a need for greater emphasis on the incorporation of visual aids like maps and charts. Lecturers play a pivotal role in creating engaging and interactive learning environments through the effective utilization of these materials. Moreover, the study highlights the positive influence of modern instructional materials on students' learning outcomes. From facilitating comprehension of difficult concepts to fostering interest and retention in various subjects, these materials contribute significantly to enhancing the quality of education in Anambra State.

Nevertheless, challenges such as inadequate training, resource constraints, and resistance to change among educators pose obstacles to the optimal utilization of modern instructional materials. Addressing these challenges requires concerted efforts from educational stakeholders, including policymakers, school administrators, and teacher training institutions. In conclusion, the findings underscore the importance of continued investment in modern instructional materials and professional development initiatives to support educators in Anambra State in harnessing the full potential of these tools.

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