

ADDRESSING EARLY LITERACY DEFICITS WITH AUDIO-VISUAL TOOLS

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ABSTRACT

The integration of technology presents significant opportunities for enhancing pedagogical practices in global education. This study investigated the specific impact of audio-visual (A-V) tools on literacy development within Ghanaian early childhood education classrooms, where English is taught as a second language. Employing a qualitative action research design framed by Multimedia Learning Theory, this research engaged a purposively selected sample of 55 learners (aged 5–7 years) from two basic schools in Ghana. Data were gathered through

tests, structured observations, and interviews, and analyzed using descriptive techniques. The findings established that the strategic use of A-V aids effectively mitigates classroom monotony, heightens learner motivation, and significantly promotes the acquisition of foundational literacy skills. The study concluded that A-V resources are a critical catalyst for literacy development and recommends their systematic incorporation into early-grade classrooms to address deficits and optimize second language acquisition outcomes.

Key Words: Audio-Visual Aids, Deficit, Early-Grade, Learners, Motivate

PURPOSE OF THE STUDY

Education is a fundamental pillar of individual and national development, with literacy serving as its critical foundation. The efficacy of a nation's educational strategies directly influences its future progress and capacity to engage with global advancements, such as the Fourth Industrial Revolution.

In Ghana, significant literacy challenges persist, as evidenced by a 2015 Early Grade Reading Assessment (EGRA) which found that over half

of primary two learners could not read a single word and only 2% read with appropriate fluency.

While national interventions like the National Literacy Accelerated Programme (2009/2010) and the USA/Ghana Learning programme (2017-2019) have been implemented to address these deficits, a specific gap remains: these policies have not focused on integrating technology, particularly audio-visual aids, into early-grade literacy instruction.

As technology continues to transform all aspects of modern life, its potential within education demands exploration. This study, therefore, aimed to investigate the role of technology by examining the specific effects of audio-visual tools on literacy acquisition in Ghanaian English Language classrooms.

RESEARCH OBJECTIVES

The study was guided by the objectives to:

- i. Assess early-grade learners' awareness of audio-visual (A-V) aids as pedagogical tools.
- ii. Compare levels of learner engagement and motivation between A-V-mediated literacy instruction and traditional teaching methods.
- iii. Evaluate the effectiveness of A-V aids in mitigating specific literacy challenges among early-grade learners.

RESEARCH QUESTIONS

1. What is early grade learners' level of awareness about using audio-visual aids for learning?
2. How do audio-visual aids influence learners' participation and interaction in literacy lessons as compared to the use of traditional method of teaching?
3. How effective are audio-visual aids in addressing literacy challenges at the early-grade level of education?

LITERATURE REVIEW

The integration of technology into language education is a multifaceted process that begins with the teacher's ability to design lessons that embed technological tools in pedagogically meaningful and relevant ways (Ranasinghe & Leisher, 2009). This approach positions technology not as an end in itself, but as a vital aid for creating collaborative and dynamic learning environments.

The core purpose of educational technology is to incorporate new tools to address pedagogical challenges and enhance the flow of information, thereby transforming aspects of language teaching, assessment, and research (Moore, 2005).

A significant body of research underscores the positive impact of specific technological tools on language learning. For instance, studies on Web 2.0 technologies, such as wikis, highlight benefits like immediate feedback on writing and opportunities for peer review, which collaboratively improve vocabulary, spelling, and overall writing skills in EFL contexts (Lin & Yang, 2011).

Similarly, a consistent finding across various studies is that audio-visual (A-V) aids significantly enhance learner motivation and engagement. Learners report greater enjoyment and attention in language classes when teachers employ diverse A-V materials, as they help bridge the gap between abstract learning and real-life

application (Cakir, 2006 as cited in Mamun, 2014; Farooqui, 2020).

A-V tools not only introduce essential variety and adaptability but they also counter the monotony that arises from an over-reliance on textbooks as the primary source of input (Mathew & Alidmat, 2013).

The positive correlation between technology and engagement is further supported at the tertiary level, with surveys indicating that its implementation leads to greater learner participation and immersion in the learning process (Hampel & Pleines, 2013).

To maximize these benefits, scholars have proposed frameworks for effective implementation. For instructional videos, Ou et al. (2019) propose a design model based on seven principles, including learning by example and adaptive feedback.

Supporting this, Fiorella and Mayer (2018, as cited in Ou et al., 2019) recommend techniques like segmenting (breaking videos into learner-controlled chunks) and using mixed perspectives to improve learning outcomes.

A comprehensive review of 53 studies by Kay (2012) confirms that despite implementation challenges, learners maintain largely positive perceptions and cognitive attitudes towards instructional videos, which can significantly boost learning performance and engagement.

Kay (2012) finding is further corroborated by multiple researchers who identify key success factors, including the management of cognitive load, elements that foster engagement, and strategies that promote active learning (Allen & Smith, 2012; Kay, 2012; Lloyd & Robertson, 2012; Stockwell et al., 2015).

Effective integration of technology is, however, not without its caveats. Critics like Strom (2021) caution that improper implementation can lead to negative outcomes, such as excessive screen time that risks learner health and potentially exacerbates learning deficits. This underscores a critical gap in the literature: while the advantages are clear, there is a pressing need for explicit guidance on teacher training.

As Hampel and Pleines (2013) note, teachers must be conversant with technology to select the most effective tools, yet practical means for enhancing their digital literacy skills are often lacking. Therefore, the onus is on educators to implement these tools judiciously and effectively to achieve desired learning outcomes while mitigating potential risks.

Despite the documented benefits of educational technology, a significant body of research presents critical counterpoints regarding its integration, particularly for early-grade literacy learners.

A primary concern is the issue of equity. Scholars such as Warschauer and Matuchniak (2010) emphasize that socio-economic disparities can

limit access to technology, thereby exacerbating educational inequalities.

Van Dijk (2006) further argues that this "digital divide" can significantly disadvantage learners from lower socio-economic backgrounds, potentially hindering their literacy development and leaving them behind in increasingly digital classrooms.

Beyond access, cognitive load theory presents a fundamental pedagogical challenge. Sweller (1988) suggests that poorly designed audio-visual aids can overwhelm young learners with excessive information, leading to cognitive overload and reduced learning efficacy.

Sweller (1988) view is supported by Kirschner et al. (2006), who posit that multimedia presentations can split a learner's attention, making it difficult to process and integrate essential information.

Mayer and Moreno (2003) emphasize the risk of extraneous cognitive load, where non-essential audio or visual elements distract from the core learning objectives rather than supporting them.

Furthermore, some researchers question the intrinsic value of the technology itself.

Clark (1983) famously argued that the medium of instruction (e.g., audio-visual aids) is merely a delivery vehicle and does not influence learning outcomes as significantly as the underlying instructional methods and content. Cuban (1986) similarly critiques the over-reliance on

technology, cautioning that traditional methods may be more effective for establishing foundational literacy skills. Adding to this skepticism, Dynarski et al. (2007) and Tamim et al. (2011) suggest that while educational technology may demonstrate short-term gains, evidence for its long-term benefits on literacy and comprehension remains inconclusive.

In light of these contrasting perspectives, a balanced and discerning approach is paramount. To maximize benefits and minimize drawbacks, integration should combine technological and traditional methods to prevent over-reliance on digital tools and ensure the development of fundamental skills like handwriting and critical thinking.

Synthesizing these views, the authors of this paper propose the following guidelines for selecting audio-visual aids for early-grade literacy:

1. Brevity and Focus: Videos must be brief and directly aligned with specific learning outcomes.
2. Coherence: Audio and visual elements should be complementary rather than redundant.
3. Signaling: Important ideas and concepts should be explicitly highlighted to guide attention.
4. Engaging Language: A conversational style should be used to enhance engagement.
5. Active Integration: Videos should be embedded within an active learning

framework, utilizing guiding questions and activities to promote processing and retention.

THEORETICAL FRAMEWORK

This study is anchored in the Cognitive Theory of Multimedia Learning (CTML) developed by Mayer and Moreno (1999) and later refined by Clark and Mayer (2003). The theory posits that individuals learn more deeply from words and graphics than from words alone. This is based on the core assumptions that the human mind processes information through dual channels—an auditory/verbal channel for processing spoken words and sounds, and a visual/pictorial channel for processing images and on-screen text. Meaningful learning occurs when learners actively engage in cognitive processes to integrate selected information from these channels into coherent mental models within working memory.

A key objective of the theory is to manage cognitive load to optimize the limited capacity of working memory. To this end, Mayer and his colleagues established a set of evidence-based principles to guide the effective design of multimedia instruction. These principles include:

- i. The Multimedia Principle: Use words and graphics rather than words alone.
- ii. The Contiguity Principle: Place corresponding words and graphics near each other.
- iii. The Modality Principle: Present words as audio narration rather than on-screen text, especially when accompanied by graphics.
- iv. The Redundancy Principle: Explain visuals with words in audio OR text, but not both simultaneously.
- v. The Coherence Principle: Exclude extraneous material, as interesting but irrelevant content can hinder learning.
- vi. The Personalization Principle: Use a conversational style and virtual coaches to enhance engagement.
- vii. The Segmenting and Pre-training Principle: Manage complexity by breaking lessons into learner-paced segments and pre-teaching key concepts.

In the context of early childhood literacy education, this theory provides a robust framework for understanding how audio-visual (A-V) aids can positively impact the development of reading and spelling skills.

By presenting language through both auditory and visual modalities, A-V aids leverage dual coding, enhancing the encoding of information into long-term memory and improving retention and recall. Furthermore, the engaging nature of well-designed multimedia increases motivation and makes the learning experience more interactive and enjoyable.

Specifically, the application of CTML supports literacy in two critical areas:

1. Phonological Awareness: The audio components of multimedia (e.g., rhymes, songs, and narrated stories) are instrumental in developing children's sensitivity to the sounds and rhythms of language.
2. Orthographic Knowledge: Visual components (e.g., images, videos, and highlighted text) help reinforce the connection between phonemes (sounds) and graphemes (letters), illustrating phonetic and spelling patterns.

Ultimately, by facilitating the multisensory integration of auditory and visual information, multimedia aids guided by CTML principles enable young learners to construct a more comprehensive and durable understanding of language structures.

METHODOLOGY

This study employed a qualitative research approach, utilizing an action research design to investigate the integration of audio-visual aids in early-grade literacy instruction. The research was conducted with a sample of sixty-two (62) learners from two basic schools in different regions of Ghana; thirty (30) learners from School A and thirty-two (32) from School B. Data were gathered through structured observations, a semi-structured interview guide (Appendix A), and pre- and post-intervention tests (Appendix C and D), and were analyzed using descriptive statistical techniques.

To assess learner engagement under different instructional modalities, researchers observed and recorded learner participation during literacy lessons. Observations were conducted across two distinct lesson types: one delivered via traditional teaching methods (Lesson 1) and another incorporating audio-visual aids (Lesson 2). Participant behaviors were systematically documented using a five-point scale for subsequent comparative analysis.

Complementing the observational data, a friendly and informal interview was administered to the sample to explore the learners' awareness and perceptions of using audio-visual aids for learning. This approach was adopted to create a congenial environment conducive to eliciting genuine responses from the young participants.

Furthermore, to quantitatively measure the intervention's impact on literacy skills, a pre-test comprising five items was administered to assess baseline spelling and reading abilities following a traditional phonics lesson. Subsequently, an intervention employing audio-visual tools was implemented over a six-week period.

A post-test of equivalent difficulty was then conducted to monitor any improvement in spelling and reading capabilities. The outcomes of both tests were analyzed using frequency tables and percentages, and the results were interpreted descriptively to evaluate the efficacy of the audio-visual intervention.

NOTE: Please refer to Appendices for the research instruments: Appendix A for the interview guide, Appendix B for sample test items, and Appendices C and D for the sampled pre-test and post-test.

FINDINGS OF THE STUDY

The results and discussion of this study are structured according to the sequence of the research questions, addressing the study's primary objective of exploring the effectiveness of audio-visual aids in fostering literacy acquisition among early-grade learners in English language classrooms in Ghana.

Findings from the pre-intervention interviews indicate that learners exhibit varying levels of familiarity with audio-visual tools, a disparity likely influenced by differences in prior exposure and access to technology.

Observational data further reveal that the use of audio-visual aids significantly enhances learner participation and interaction during literacy lessons compared to traditional instruction methods.

The multimodal quality of these materials caters to diverse learning styles and engages learners on multiple sensory levels. Visual elements—such as videos, images, and charts—help concretize abstract concepts, thereby improving comprehension. Additionally, these aids stimulate curiosity and sustain learners' attention and motivation throughout the instructional process.

Research Question 1: What is early grade learners' level of awareness about using audio-visual aids for learning?

To address the first research question, which explored early-grade learners' awareness of audio-visual (A-V) aids for learning, data from participant interviews revealed varying levels of familiarity and experience.

When asked to define audio-visual aids, 60% of the learners provided a description based on their personal understanding and exposure, demonstrating a foundational awareness of the concept.

Regarding the types of A-V tools, the majority of respondents were able to identify various technological devices used to project audiovisual content. Commonly cited examples included televisions, computers, tablets, and mobile phones, indicating general recognition of these gadgets.

However, when questioned about their personal use of such devices for educational purposes, most learners reported that they had not used A-V aids specifically for learning spelling or reading. Instead, the most frequent uses were recreational, such as watching films, playing games, or viewing comedy shows like "Tegwolo."

Only a small minority indicated that they had ever used these technologies to access phonics songs, educational games, or literacy-building activities, and even those learners reported doing so only occasionally.

In terms of preference, participants recommended the use of videos, films, and cartoons as preferred A-V learning materials. The overwhelming majority expressed enthusiasm and willingness to learn using A-V aids, often citing existing interests in watching TV and playing computer games, as reasons they would pay greater attention in class if such tools were incorporated.

Several learners with access to these devices at home mentioned they would ask their parents to download educational applications. Despite this interest, a significant minority (40%) noted that their parents did not own such gadgets, highlighting a potential barrier to access and equity.

Research Question 2: How do audio- visual aids influence learners’ participation and interaction in literacy lessons as compared to the use of traditional method of teaching?

To address the second research question, which examined how audio-visual (A-V) aids influence learner participation and interaction compared to traditional teaching methods, a comparative analysis of observational data was conducted. The results demonstrate a pronounced positive effect on engagement and interactivity when A-V aids were incorporated.

During lessons employing traditional methods (Lesson 1), observers noted that learners were generally less focused and attentive, yielding an average engagement rating of 2/5 across both schools. Participation was limited, with few learners actively contributing to discussions,

scoring 2/5 in School A and 3/5 in School B. Furthermore, peer and learner-teacher interactions remained superficial, receiving a low rating of 2/5 in both schools. The overall effectiveness of traditional lessons in sustaining learner engagement was consistently rated at 2/5.

In contrast, lessons integrating audio-visual aids (Lesson 2) resulted in markedly higher levels of engagement and interaction. Learners appeared highly focused and attentive, achieving an engagement rating of 4/5 in both schools. Participation levels increased substantially, earning a score of 4/5 in both settings. Interaction among participants was notably more dynamic and substantive, reflected in ratings of 5/5 in School A and 4/5 in School B. The overall effectiveness of A-V aided lessons in engaging learners was rated 5/5 in School A and 4/5 in School B.

The comparative analysis indicates that audio-visual aids significantly outperformed traditional methods across all observed metrics—engagement, participation, and interaction. These findings suggest that the multimodal and stimulating nature of A-V resources captures learners' attention more effectively, encourages active involvement, and fosters richer collaborative exchanges.

Therefore, the integration of audio-visual aids into literacy instruction appears to be a highly effective strategy for enhancing learner engagement and facilitating meaningful interaction in early-grade classrooms.

Research Question 3: How effective are audio-visual aids in addressing literacy challenges at early-grade level of education?

The third research question sought to determine the effectiveness of audio-visual aids in addressing literacy challenges at the early-grade level in education. The pre-test and post-test results of school A are presented in Tables 1A and 1B.

Table 1A
School A Learners' Pre-test Results

Marks (x)	Frequency(f)	F(x)
0	5	0
1	4	4
2	4	8
3	8	24
4	6	24
5	3	15
Total	30	75

Pre-intervention

Mean (Average mark) = total of (fx) / total of (f)
 Mean = 75/30 Mean = 2.5

Table 1B
School A Learners' Post-test Results

Marks (x)	Frequency (f)	F(x)
10	7	70
9	8	72
8	8	64
7	4	28
5	2	10
Total	30	244

Post-intervention

Mean = total of (fx)/ total of (f)
 = 244/30 Mean = 8.1

The results of the pre-test and post-test assessments for School A are presented in Tables 1A and 1B. The mean score on the pre-intervention test was 2.5, compared to a mean of 8.1 on the post-intervention test, indicating substantial improvement following the instructional use of audio-visual aids.

Analysis of the pre-test results reveals limited initial spelling proficiency. The highest score achieved was 5 out of 10, attained by only three learners. The majority of participants (27 learners) scored below 5, representing less than half of the total possible points. In contrast, post-test results demonstrate marked improvement, with the highest score rising to a perfect 10 out of 10. Seven learners achieved full marks, reflecting considerable gains in spelling ability attributable to the audio-visual intervention.

Complementing these quantitative findings, qualitative data from participant interviews indicated that learners had limited prior access to or experience with audio-visual learning tools. Classroom observations further revealed that while many learners could identify individual letters and sounds, most struggled to comprehend or interpret connected text. Only a small number were able to read short passages written on the board with adequate fluency or understanding.

Corresponding pre-test and post-test results for School B are provided in Table 2A and 2B, enabling comparative analysis between the two participant groups. As illustrated in Table 2A, pre-

test results indicate limited initial literacy proficiency among learners. Twenty-nine learners scored between 0 and 4 marks out of a total of 10, while only three learners scored between 5 and 6 marks.

Table 2A
School B Learner’s Pre-Test Results

Marks (X)	Number of learners (F)	F(X)
0	4	0
1	10	10
2	3	6
3	7	21
4	5	20
5	1	5
6	2	12
7	0	0
8	0	0
9	0	0
10	0	0
TOTAL	32	74

Pre-test

Mean mark = $\sum fx / \sum f$ Mean = $74 / 32 = 2.3$

The mean score of 2.3 further underscores the cohort’s overall low performance, with the vast majority of learners unable to achieve half or more of the total marks. These results suggest significant challenges in early-grade language acquisition prior to the intervention.

In contrast, post-test results following the integration of audio-visual tools, presented in Table 2B, reveal substantial improvement. The mean score rose to 6.4, and 24 learners scored above half marks, demonstrating a marked increase in overall performance. The wider distribution of scores and higher frequency of

upper-range results reflect meaningful gains in literacy skills.

Table 2B
School B Learner’s Post-Test Results

Marks (X)	Number of learners (F)	F (X)
0	1	1
1	0	0
2	2	4
3	2	6
4	3	12
5	3	15
6	5	42
7	8	56
8	4	32
9	3	27
10	1	10
TOTAL	32	205

Mean = $\sum fx / \sum f$ Mean = $205 / 32 = 6.4$

This notable enhancement in learner outcomes aligns with existing research affirming the educational value of technology-assisted instruction. The findings support the assertion that integrating ICT tools, such as audio-visual aids, can facilitate deeper understanding and improve results compared to traditional teaching methods (Asoodeh, 1993; Kolish, 1985; Siribodhi, 1995).

The data thus underscore the latent benefit of incorporating technological tools into early-grade literacy instruction to address learning challenges and promote academic development.

DISCUSSION OF FINDINGS

Addressing literacy deficits through audio-visual (A-V) tools is a critical area of study, particularly at the early-grade level, where literacy serves as a

foundational skill for lifelong learning. The pervasive challenge of low literacy rates in Ghana provided the impetus for this interventionist research, which sought to remediate these deficits through targeted pedagogical innovation.

The study demonstrated a substantial increase in learner interest and participation following the implementation of A-V aids, a finding corroborated by both oral and written assessments, samples of which have been presented from each participating school.

Specifically, the research focused on measuring improvement in spelling and reading skills. The analysis reveals a strong positive effect, as evidenced by the remarkable disparity between pre-test and post-test mean scores in both School A and School B. This quantitative improvement indicates that the consistent use of A-V aids can significantly enhance early-grade literacy acquisition.

Qualitative data from interviews provide further insight into this success. While many learners reported having access to technology at home—primarily used for watching cartoons such as *Spider-Man*, *Tegwolo*, and *Boss Baby*—they confirmed these tools were seldom used for educational purposes like spelling or reading.

Notably, learners could vividly recount these cartoons in their first language, demonstrating the strong engagement and retention facilitated by A-V media. This existing affinity was successfully channeled into the classroom, where learners

expressed a strong desire for A-V integration, with many pledging to ask their parents to download literacy apps and games. Conversely, learners frequently characterized traditional spelling and reading lessons as boring and difficult, attributing this directly to the absence of multimedia tools.

A significant barrier to access was, however, identified. The study revealed that a number of learners come from households that lack even basic technological resources, such as an Android phone, largely due to their residence in rural villages. This inequity is compounded by the fact that the schools themselves are not equipped with these learning tools.

Despite these challenges, the observed enthusiasm and willingness of learners to participate in A-V-mediated lessons underscore a powerful intrinsic motivation for skill acquisition that moves learning beyond compulsion.

The findings collectively argue for the strategic integration of A-V aids in early-grade literacy instruction, while simultaneously highlighting the urgent need to address the digital divide to ensure equitable educational opportunities.

CONCLUSIONS

This study was conducted at Sokode–Lokoe M/A Basic School, focusing on Stage One learners. Its primary objective was to analyze the effectiveness of audio-visual aids in enhancing literacy acquisition skills. Data were collected through classroom observations, semi-structured interviews, and pre- and post-intervention tests.

The analysis revealed a strong learner preference for audio-visual aids over traditional methods, such as phonetic drilling and text-based reading. Findings from this study establish that the use of audio-visual tools facilitates comprehension and promotes active participation among early-grade learners during literacy instruction.

Specifically, audio-visual aids were observed to significantly increase learner interest and attentiveness. By creating a stimulating learning environment through visually appealing and interactive content, these tools foster curiosity and motivation. Furthermore, they support conceptual understanding by concretizing abstract ideas through visual representation, thereby improving long-term retention of literacy concepts.

Overall, the results indicate that technology-enhanced classrooms provide an interactive learning environment where learners engage both with digital features and their peers. The use of audio-visual aids stimulates critical thinking, disrupts monotonous classroom dynamics, and encourages active—rather than passive—learning. Learners in such settings become more involved in the learning process, demonstrating heightened participation and ownership of their learning.

For technology integration to be effective, however, teachers must be adequately trained and confident in using digital tools. Pedagogical readiness—knowing when and how to utilize specific technologies to meet diverse learner needs—is essential for maximizing the

educational benefits of audio-visual aids in early-grade literacy development.

RECOMMENDATIONS

Based on the findings that audio-visual aids reduce classroom monotony, increase learner motivation, enhance early childhood literacy development, and address deficits in literacy acquisition, it is recommended that such resources be made available in all early-grade classrooms.

The observed increase in learner participation during lessons incorporating audio-visual tools clearly indicates that technology can effectively supplement traditional literacy instruction. To facilitate this integration, the following recommendations are proposed:

1. **Instructional Shift:** Instructors should move beyond exclusive reliance on traditional literacy teaching methods by incorporating audio-visual tools into their lesson delivery.
2. **Resource Allocation:** Although the use of audio-visual aids is already reflected in the syllabus, educational stakeholders should allocate specific funding to schools to enable the procurement of technological tools that support effective literacy instruction.
3. **Teacher Training:** The Ghana Education Service (GES) should organize regular in-service training to ensure teachers remain current with technological advancements and pedagogical strategies for integrating these tools into literacy teaching.

4. Monitoring and Evaluation: A joint monitoring team comprising representatives from the GES and the Ministry of Education should be established to ensure the effective and sustained use of audio-visual aids across schools.

These measures collectively support the creation of more engaging, effective, and equitable literacy learning environments for early-grade learners in Ghana.

SUGGESTIONS FOR FURTHER RESEARCH

Based on the findings of this study, the following recommendations are proposed to guide future research:

1. Expanded Scope of ICT Tools: This study focused specifically on audio-visual aids; therefore, further research should investigate the integration of other ICT tools in early-grade literacy instruction. Exploring the efficacy of resources such as interactive whiteboards and digital mind-mapping tools could provide a more comprehensive understanding of technology's role in foundational literacy development.
2. Teacher Preparedness and Attitudes: A study should be conducted to examine teachers' technological knowledge, willingness, and perceived barriers to using audio-visual aids in their pedagogy. This research direction is prompted by the observation that teachers in the study

context underutilized available ICT tools, suggesting that addressing human factors is critical for successful implementation.

3. Longitudinal Impact: Future research should employ a longitudinal design to assess the long-term effects of consistent audio-visual aid usage on literacy outcomes. Such studies would be valuable in determining whether the significant short-term gains observed in this study are sustained over time and how they influence overall academic progression.

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APPENDICES

Appendix A: Interview Guide for Learners

1. What are audio-visual aids?
2. Mention some audio-visual aids you know.
3. What do you use these gadgets for?
4. Will you like to use these gadgets to learn?
5. If your response to question 4 is yes: Why Will you like your teachers to use these gadgets to teach you literacy such as spelling and reading?
6. Why will you tell your parents to download spelling and reading applications for you?

Appendix B: Observation Checklist

Engagement

Learners appear focused and attentive (Scale: 1-5, where 1=never, 5=always)

1 2 3 4 5

Learners participate in discussions and activities (Scale: 1-5, where 1=rarely, 5=frequently)

1 2 3 4 5

Learners ask questions and engage with the material (Scale: 1-5, where 1=seldom, 5=consistently)

1 2 3 4 5

Learners seem motivated and interested (Scale: 1-5, where 1=not at all, 5=very)

1 2 3 4 5

Participation

Number of learners contributing to discussions (Scale: 1-5, where 1=few, 5=most)

1 2 3 4 5

Frequency of learner interactions with teacher and peers (Scale: 1-5, where 1=infrequent, 5=frequent)

1 2 3 4 5

Interaction

Quality of interactions (Scale: 1-5, where 1=superficial, 5=in-depth)

1 2 3 4 5

Learners build on each other's ideas (Scale: 1-5, where 1=rarely, 5=consistently)

1 2 3 4 5

Audio Visual Aid Use

Effectiveness of audio- visual aid in engaging learners (Scale: 1-5, where 1=ineffective, 5=very effective)

1 2 3 4 5

Frequency of audio -visual aid use (Scale: 1-5, where 1=rarely, 5=frequently)

1 2 3 4 5

Traditional Teaching Methods

Effectiveness of traditional teaching methods in engaging learners (Scale: 1-5, where 1=ineffective, 5=very effective)

1 2 3 4 5

Frequency of traditional teaching methods (Scale: 1-5, where 1=rarely, 5=frequently)

1 2 3 4 5

Appendix C: Sampled Pre-Test Items

1.Dictation: Write the following words:

cat

dog

sun

hat

mom

2. Write short sentences using each of the words above: _____

3. Read the following words:

an

and

fat

get
the

Read the following short passage:

"The cat sat on the mat."

What is the cat doing? _____

What is the cat sitting on? _____

Read the following short sentences:

I like dogs.

The sun is shining.

I have a hat.

Appendix D

Write the following words:

friend

family

happy

school

girl

Write short sentences using the words above: _____

Read the following words:

big

little

up

down

melt

Read the following short passage:

"The cat and dog are friends. They like to play together."

What are the cat and dog? _____

What do they like to do? _____

Read the following short sentences:

I have a big family.

The sun is shining up high.

- What type of family do you have? a family

What is shining up high?