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The Development of Audio-Visual Media on the Memory Retention of Early Childhood at RA Darussalam

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ABSTRACT

This study explores audio-visual media's development process and effectiveness in improving memory retention among early childhood learners. Using a Research and Development (R&D) approach based on the Borg and Gall model (2003), the research followed ten stages, including preliminary studies, planning, product development, implementation, and evaluation. The media developed consisted of educational animated videos presenting letters and numbers through visual elements, audio, and interactive activities tailored to the learning characteristics of young children. The validation results showed a feasibility score of 97.14%, categorized as very high. The trial was conducted at RA Darussalam and involved both teachers and students. Observations and interviews revealed that the children were enthusiastic, focused, and actively engaged in learning. They could answer questions and recall information effectively after using the media. Teachers noted that the press enhanced student participation and engagement in classroom activities. The audio-visual media created an enjoyable learning atmosphere and stimulated children's cognitive and social abilities. It also helped reduce learning fatigue and increased students' interest in the subject. Based on these findings, the media is considered adequate for early childhood education, particularly in strengthening memory retention and understanding of basic concepts.

Keywords: Audio-Visual Media; Cognitive Development; Early Childhood; Interactive Learning; Memory Retention.

INTRODUCTION

Early Childhood Education (ECE) is a fundamental stage in shaping children's character and basic abilities. At this stage, children are in their golden age, a period during which brain development occurs rapidly. Every stimulation given during this time will significantly affect the child's growth and development in the future. Therefore, educators and parents must provide appropriate, enjoyable, and developmentally suitable education.

At the ECE level, learning not only focuses on academic aspects but also includes the development of moral, social, emotional, physical, and spiritual values. Referring to the National Education Standards Act No. 4 of 2022, the aspects to be considered include religious and moral values, physical motor skills, cognitive, language, and socio-emotional development. These five aspects must be developed holistically and in

balance so that children grow into intellectually, emotionally, and spiritually intelligent individuals.

However, in practice, early childhood education still faces various challenges. One common issue is the low memory retention among children for the material taught. Many children have difficulty recalling information they receive in class, whether orally or visually (Niman et al., 2024; Helmi et al., 2025).

Based on interviews with teachers at RA Al-Junaidiyah, around 30% of children in class A and 50% in class B had suboptimal memory retention. These children often fail to recall previous lessons, such as letters, numbers, or simple songs. This condition shows a gap between the teaching methods and the children's learning needs.

One of the leading causes of weak memory retention is the lack of material repetition at home. Many parents do not continue the learning process at home due to time constraints or a lack of awareness about the importance of reinforcement. Moreover, a monotonous and unengaging classroom environment contributes to children's boredom and lack of focus during learning (Zhao et al., 2022).

Memory plays an essential role in children's cognitive development. Children with strong memory skills are better able to absorb and apply information in daily life. On the other hand, weak memory hinders the learning process and affects overall development, including language, numeracy, and logical thinking skills (Masruhim et al., 2021).

Learning interest and motivation are also essential factors influencing memory. Children tend to remember information better when it is delivered engagingly and enjoyably. If the material is presented monotonously or is too difficult, children will lose interest in learning (Handayani et al., 2024), become passive, and make little progress.

Data from teachers show that around 30–60% of children struggle with creative thinking and completing simple tasks that require short-term memory. This indicates that the current learning methods have not fully met the learning needs of early childhood. Therefore, more innovative and relevant teaching approaches are urgently needed.

One alternative solution is the use of audio-visual learning media. This type of media presents information through images, sounds, and movement, which are highly appealing to children (Araiza-Alba et al., 2020). Audio-visual media can create more vivid learning experiences and stimulate multiple senses, making information easier to understand and remember (Khotami et al., 2024).

The advantages of audio-visual media lie not only in its visual appeal but also in its ability to create an enjoyable learning environment. Children are more motivated to participate in lessons that use songs, animations, picture stories, or interactive videos. In addition, this media can be used repeatedly, allowing children to review and reinforce their understanding (Simamora & Sitorus, 2023).

In the context of ECE, learning should be designed according to each child's development and needs. Not all children learn in the same way. Some are more responsive to visuals, while others understand better through sounds or movement. Audio-visual media enables teachers to effectively accommodate various learning styles (Primastuty & Asmawulan, 2024).

However, another issue is the limited availability of learning media in several ECE institutions, including RA Al-Junaidiyah. Teachers report that the current press used is minimal and lacks variety, causing children to become bored and less active in learning activities quickly. This challenges creating engaging and meaningful learning experiences (Setiowati et al., 2021).

The use of audio-visual media can address these challenges. It can support various learning activities, from introducing letters, numbers, shapes, and colors to social and religious values. With attractive packaging, children can stay focused and actively involved in learning. Ultimately, this will positively affect their memory and overall development.

Given the potential and benefits of using audio-visual media, educators need to develop instructional media that aligns with the characteristics of young children. The media should consider educational, aesthetic, and emotional engagement elements to achieve optimal results. Collaboration between teachers, parents, and media experts is necessary in this development process.

Based on the problems and potential solutions discussed, the primary focus for improving the quality of education at RA Darussalam is to develop innovative audio-visual media. This media is expected to improve early childhood memory effectively, create a fun learning environment, and support children's cognitive and social development optimally.

RESEARCH METHOD

The research conducted in this study employs a Research and Development (R&D) approach, which is a systematic method aimed at developing and refining a product through iterative testing and evaluation. This model refers to the educational development theory proposed by Borg and Gall (2003), emphasizing the importance of a structured and continuous process to create effective, high-quality instructional products. In early childhood education, the R&D approach is highly relevant because it enables researchers to design learning media tailored to young children's developmental characteristics and learning needs (Sugiyono, 2021).

This study focuses explicitly on developing audio-visual media as a learning aid to enhance early childhood memory retention. Audio-visual media was chosen due to its capacity to deliver information in a stimulating and multisensory manner, which can capture children's attention and engagement. By integrating visual elements, sound, animation, and narration, this media is expected to create meaningful and memorable learning experiences. Previous studies have shown that audio-visual-based media significantly enhances cognitive aspects, including children's memory and understanding (Helmi et al., 2025; Masruhim et al., 2021).

The research procedure follows the ten main stages of the Borg and Gall model: (1) preliminary study, (2) planning, (3) product design development, (4) initial field testing, (5) revision of test results, (6) main field testing, (7) revision of main test results, (8) product feasibility testing, (9) final revision based on feasibility results, and (10) dissemination and implementation. Each stage is systematically carried out to ensure

that the developed media is feasible and effective for early childhood education. Feedback from teachers and students plays a crucial role in product revision, as Borg and Gall (2003) recommended in their instructional development framework.

RESULTS AND DISCUSSION

Result

The results of this study began with a preliminary investigation conducted at RA Darussalam, which revealed challenges in early childhood learning, particularly in singing and counting activities. Initial observations showed that children experienced difficulties recognizing letters and numbers because conventional teaching methods had not yet optimized the potential of interactive activities. Therefore, there was a need for more innovative and enjoyable learning media that could integrate elements of movement, sound, and interaction—such as singing and counting. Literature reviews also support the importance of audio-visual media in enhancing children's motivation and memory retention, as this media effectively combines visual and auditory stimuli, making children more interested, better able to understand, and capable of remembering content for more extended periods (Helmi et al., 2025; Masruhim et al., 2021).

Following the preliminary study, the researcher proceeded to the planning stage of developing audio-visual media by setting clear learning objectives, selecting creative and relevant video titles, and organizing the content and sequence of materials in a structured manner. The main goal of this media development was to help students improve memory retention through an experiential learning approach that encourages active and creative learning. During this stage, relevant materials such as theories, supporting images, and visual examples were selected, and a content framework was created to ensure the material delivery followed a logical and organized structure. The product design was developed with educators, media experts, and content specialists to provide the media aligned with children's developmental characteristics. Once the content was determined, storyboards and scenarios were created with cheerful animated characters, straightforward narration, and upbeat background music to create an engaging learning experience. The production process involved recording visuals and audio and thorough video editing. Each letter or number was introduced entertainingly, accompanied by songs and familiar object examples, allowing children to relate learning to things they already know. Parents were also encouraged to be involved so children could review the material at home.

The next stage was the initial field trial, which took place at RA Al-Junaidiyah for three days and involved four teachers and ten children. The results of this trial showed a feasibility score of 85.45%, indicating that the media was suitable and engaging for use. However, teacher feedback suggested the need for greater interactivity and simpler material delivery. As a result, the researcher revised the media by simplifying the content and adding interactive elements such as quizzes and games to make children more active in learning and enhance their memory retention. After revisions, the media

was prepared for the main field trial at RA Darussalam, conducted during real classroom learning sessions. Teachers used the press while the researcher observed student engagement and responses. Data from the main field trial was then analyzed, and further revisions were made to improve the media's quality based on student needs and teacher suggestions.

Figure 1. The Development of Audio-Visual Media at Early Childhood RA Darussalam

During the feasibility testing stage, the revised audio-visual media was implemented in classrooms with more participants. The instructional content focused on basic concepts such as numbers, letters, and shapes. Each learning session combined media presentation with practical activities like singing, answering questions, and role-playing. The objective of this stage was to ensure the media's effectiveness in stimulating memory and increasing student engagement. After completing the feasibility test, a final revision was conducted based on implementation results and any identified shortcomings. This step aimed to perfect the media, making it entirely suitable for broader application.

The final stage of the research was the dissemination and implementation of the audio-visual media at RA Darussalam. Teachers received a brief training session to ensure they could effectively operate and utilize the media. During implementation, the media was used in daily classroom learning to introduce fundamental concepts such as colors, shapes, letters, and numbers. Children were actively involved through question-

and-answer sessions, songs, and visual activities reinforcing the material. Researchers and teachers observed the children's responses, including enthusiasm, focus, and memory performance, while also documenting the process through notes and video recordings for further analysis. After several sessions, an evaluation was conducted to assess the media's effectiveness in enhancing memory retention. This included simple memory tests comparing pre- and post-use performance. The results showed significant improvement, proving that the developed audio-visual media effectively enhanced early childhood memory and created a meaningful and enjoyable learning experience.

Discussion

Audio-visual media plays a significant role in early childhood education, particularly enhancing memory retention and learning motivation. Young children typically have dominant visual and auditory learning styles, making using media that combines images, sounds, and motion more effective than conventional approaches. Zhao, Liu, and Chen (2022) explained that multimedia integration in learning significantly enhances understanding and memory retention. Similarly, Araiza-Alba et al. (2020) stated that virtual and audio-visual-based media can create immersive learning experiences that strengthen information processing and long-term memory. These findings suggest that instructional strategies using audio-visual media align with the cognitive development needs of young learners.

Developing audio-visual media for early childhood must consider their developmental needs and unique learning characteristics. Helmi, Masrumin, and Palenewen (2025) emphasized that effective educational media should be aligned with cognitive, social, and emotional developmental principles. At RA Darussalam, the media was designed using bright colors, educational songs, and interactive animations to capture attention and foster engagement. Masruhim, Elin, and Palenewen (2021) found that multisensory-based media significantly improved focus and information absorption among young children. Media that considers children's visual and emotional aspects provides a learning experience that is both enjoyable and effective.

Trials of the audio-visual media conducted at RA Darussalam and RA Al-Junaidiyah showed significant improvements in children's memory retention of letters and numbers. Children appeared more focused, active, and capable of recalling information presented through the media. Niman et al. (2024) demonstrated that audio-visual media enhances short-term memory by simultaneously delivering visual and auditory stimuli. This is supported by Setiowati, Asmarani, and Yulianto (2021), who confirmed that audio-based media effectively conveys abstract concepts through concrete representation. Khotami, Febriyanti, and Cindrya (2024) added that learning the alphabet using audio-visual media yields better outcomes than traditional lecture-based methods.

Teacher involvement and support are crucial for successfully using media in learning. Teachers at RA Darussalam noted that the media created a more vibrant classroom atmosphere and motivated students more effectively. Simamora and Sitorus (2023) highlighted the importance of teachers facilitating meaningful interaction

between the children and the media. Children also responded positively, saying that learning through media was fun, less boring, and easier to remember. Handayani, Agustiningrum, and Sukiram (2024) found that educational videos significantly improved children's vocabulary acquisition and concentration due to their engaging and repeatable nature.

Despite the positive outcomes, there are still challenges in implementing audio-visual media. Not all children can follow the pace of the content equally, and some require more time to understand the material. Therefore, the media must be more inclusive by incorporating interactive elements such as quizzes, puzzles, and educational games. Primastuty and Asmawulan (2024) suggested that participatory activities help sustain the attention of young learners more effectively. Dewi and Gunawan (2022) also stressed the importance of training teachers to ensure optimal media use. Skilled teachers can integrate media effectively and adapt it to the learners' diverse needs.

Overall, audio-visual media has proven to be an effective instructional tool for enhancing memory and engagement in early childhood education. These findings are supported by national and international studies highlighting how digital and interactive media contribute significantly to educational success. Monita (2024), Ramadhani and Utami (2023), and Arifin (2024) have particularly emphasized the importance of integrating technology into early childhood learning as a response to the challenges of 21st-century education. Therefore, collaboration between teachers, media developers, and parents is essential to ensure that the media used is impactful and relevant to children's development. The implementation of audio-visual media should be part of a sustainable strategy for creating meaningful, enjoyable, and adaptive learning experiences.

CONCLUSIONS

Integrating audio-visual media in early childhood education is a highly effective strategy for enhancing memory retention, engagement, and overall learning experiences. Children respond positively to colorful visuals, engaging sounds, and interactive elements, which align well with their cognitive development and learning preferences. Through carefully designed content incorporating narration, music, and animation, audio-visual media helps children better understand and remember learning materials such as letters and numbers. Numerous studies support the effectiveness of this approach, showing that children exposed to audio-visual content exhibit improved concentration, motivation, and the ability to recall information more accurately and confidently.

Despite its apparent benefits, successfully implementing audio-visual media in early education requires adequate teacher training, thoughtful media design, and ongoing collaboration among educators, parents, and media developers. Ensuring that the content is inclusive, developmentally appropriate, and allows for active participation through games, quizzes, and repetition is essential. When used effectively, audio-visual media enhances memory and promotes creativity, language skills, and emotional engagement. Therefore, audio-visual media should be considered a vital component in

modern early childhood education, especially in the context of digital transformation and 21st-century learning demands.

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