



## Animated video-based learning media for enhancing vocabulary development in early childhood education

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### Abstract

Limited vocabulary development in early childhood poses significant barriers to communication and learning. Addressing this gap, this study explores the use of animated video-based learning media as a tool to enhance vocabulary acquisition among children aged 4–5 years. Employing the Research and Development (R&D) approach with the Borg & Gall model, the media was designed using Canva, validated by experts, and tested at TK Anak Soleh Curup 2. Results indicate a significant improvement in vocabulary development, with post-test scores increasing from an average of 17.16 (emerging) to 24.83 (well-developed). Statistical analysis using the t-test confirms the media's effectiveness ( $t = -20.387$ ,  $p < 0.05$ ). The study underscores the potential of animated video media to foster engagement and learning in early education. It recommends broader adoption of multimedia tools to address communication challenges and enhance teaching practices.

**Keywords:** animated video; early childhood; vocabulary development; multimedia learning

## PENDAHULUAN

Effective communication is a cornerstone of early childhood development, enabling children to express themselves, build relationships, and engage meaningfully in educational activities. Vocabulary acquisition, as an essential component of language development, directly influences a child's cognitive, social, and academic growth (Arnianti, 2019; Madyawati, 2016; Ruswanti et al., 2013). Despite its importance, limited vocabulary remains a significant challenge for many young learners, particularly in educational settings that rely on traditional, teacher-centered approaches (Irawan et al., 2021; Pertiwi et al., 2023). Addressing this gap is critical to ensuring that all children have equitable opportunities to develop foundational language skills.

Cognitive learning theories highlight the role of active engagement and meaningful stimuli in promoting language development. Tools that incorporate visual and auditory elements, such as animated videos, have been found to effectively capture children's attention and improve retention (Ariani & Ujjanti, 2021; Habibah & Nafiqoh, 2022). Animated media uniquely align with children's developmental needs by offering multisensory learning

experiences, which surpass the limitations of traditional instruction (Riyana et al., 2020). Studies reveal that children exposed to multimedia-based instruction demonstrate better vocabulary retention compared to those taught through lecture-based methods (Jamun & Momang, 2021; Sari & Wirman, 2023). Despite this, the use of animated video media in early childhood education remains underutilized, particularly in developing regions like Indonesia.

Observational data from TK Anak Soleh Curup 2 revealed that 19 out of 24 children exhibited minimal vocabulary development, attributed to traditional teaching practices and limited access to engaging educational tools. This finding reflects broader trends, as previous studies also report a lack of effective multimedia integration in early education programs (Pertiwi et al., 2023; Suherman et al., 2022). Traditional teaching methods often fail to cater to the diverse learning preferences and cognitive capacities of young learners, leading to disengagement and suboptimal learning outcomes (Samoshkina, 2024).

Recognizing these challenges, this study addresses the research gap by developing, validating, and evaluating animated video-based media tailored to enhance vocabulary acquisition among children aged 4–5 years. Using the Research and Development (R&D) approach with the Borg and Gall model, this research contributes to the growing body of evidence supporting multimedia learning tools as effective solutions for early childhood education. It emphasizes the importance of contextually relevant and developmentally appropriate content to bridge gaps in vocabulary instruction and foster meaningful engagement in learning activities.

## **METODE PENELITIAN**

This study employed the Research and Development (R&D) approach based on the Borg and Gall model, which is widely used for designing, validating, and testing educational tools. The model was adapted to four core stages: needs analysis, design and development, expert validation, and field testing (Borg & Gall, 2003; Sugiyono, 2019). These stages allowed the research to create educational tools tailored to the developmental needs of young children.

### **Needs Analysis**

The first step involved identifying challenges faced by early learners in vocabulary acquisition. The needs analysis phase aimed to identify the existing challenges in vocabulary acquisition and the limitations of current teaching practices. Observations and interviews conducted with teachers at TK Anak Soleh Curup 2 revealed that traditional lecture-based teaching was ineffective in engaging children and promoting vocabulary retention. This is

consistent with studies showing that passive, teacher-centered instruction limits language development in early childhood (Buysse et al., 2014; Hadley et al., 2022; Yang et al., 2021). The analysis pointed out the need for innovative teaching methods and multimedia tools that could better meet the cognitive and sensory needs of young children (Morrow, 2018).

### **Design and Development of Animated Media**

The second stage involved the creation of animated video media using Canva. This tool was chosen for its accessibility and ability to produce vibrant, engaging content suitable for early learners. The design and development phase focused on creating animated video content using Canva, a widely accessible multimedia design tool. The videos incorporated dual visual and auditory elements to enhance vocabulary retention. According to cognitive load theory, reducing unnecessary complexity in instructional media allows children to focus on the most relevant information, improving learning outcomes (Paas & Sweller, 2014; Sweller, 2011). The design process ensured the media adhered to principles of multimedia learning, integrating words with pictures to facilitate learning, especially for young learners (Mayer, 2021).

### **Validation by Experts**

After the media was developed, it underwent validation by experts in early childhood education and multimedia design. The validation ensured that the content met educational standards, was visually appealing, and was appropriate for the cognitive and developmental stages of children. Expert validation is an essential step in the development of educational materials, ensuring the tool is effective and usable in real-world settings (Almgren, 2018). Feedback was incorporated to improve the clarity of the narration and make the visuals more culturally relevant. To ensure the media's quality and effectiveness, it was validated by experts in early childhood education and multimedia design. The evaluation criteria included content alignment with curriculum objectives, usability, visual and auditory quality, and overall appropriateness for young learners. Feedback from validators led to minor revisions, such as refining narration clarity and enhancing the cultural relatability of visuals.

### **Small-Scale Trial**

Following expert validation, the animated videos were tested with a small group of 12 children from TK Anak Soleh Curup 2. This small-scale trial aimed to assess how the children interacted with the animated videos and evaluate the impact of the media on their vocabulary knowledge. Pre- and post-tests were conducted to measure any changes in vocabulary

acquisition. The small-scale trial provided initial insights into the effectiveness of the media in promoting vocabulary learning among young learners (Pertwi et al., 2023).

### **Large-Scale Trial**

In addition to the small-scale trial, a large-scale trial was conducted in a broader context, involving multiple classrooms at TK Anak Soleh Curup 2. This trial aimed to assess the effectiveness of the animated video media on a larger group of students. The large-scale trial involved 24 students across two classes (A1 and A2), with pre- and post-test assessments to measure vocabulary development. This trial helped validate the findings from the small-scale trial and demonstrated the scalability of the animated video media for promoting vocabulary development across a larger group of children.

### **Statistical Analysis**

The results of both the small- and large-scale trials were subjected to statistical analysis using a t-test to determine if the improvements in vocabulary acquisition were significant. The statistical analysis confirmed the effectiveness of the animated video media in enhancing vocabulary learning among young children.

This methodological framework was carefully designed to align with the developmental needs of preschool learners and to ensure the media's suitability for vocabulary instruction. By focusing on these systematic steps, the study aimed to produce a robust, validated tool for enhancing early childhood education.

## **RESULTS AND DISCUSSION**

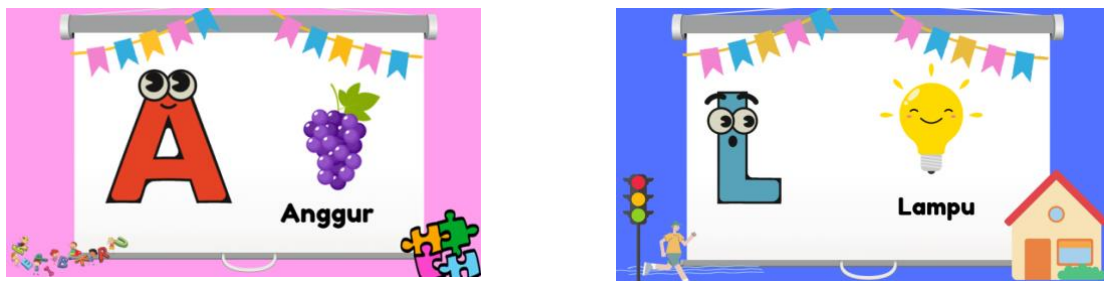
The results of the study are presented according to the methodological steps. These include the needs analysis, the validation of animated video media, the small-scale trial, and the large-scale trial. Each step highlights the effectiveness of the animated video media in improving vocabulary acquisition among young children.

### **Needs Analysis Results**

The needs analysis phase identified significant gaps in vocabulary acquisition and teaching methods at TK Anak Soleh Curup 2. Observations and interviews with teachers revealed that traditional lecture-based teaching methods were ineffective in engaging children, which contributed to limited vocabulary retention. Teachers noted that children were not adequately stimulated to learn new vocabulary, often struggling with language comprehension. This analysis confirmed the necessity of incorporating innovative teaching methods and multimedia tools into the classroom to enhance vocabulary development (Morrow, 2018).

### **Design and Development of Animated Media Result**

The design and development of the animated media aimed to create engaging, visually appealing content that would support vocabulary acquisition among young children. The media was designed with bright, colorful visuals, simple animations, and age-appropriate language to enhance children's understanding and retention of new words. The design process involved iterative feedback from educational experts to ensure the content aligned with developmental needs and educational standards. The results of the development process are visually presented in the following image, which illustrates the core elements and structure of the animated media. The Figure 1 below highlights the key features of the animation, including character design, scene transitions, and interactive elements, which were validated to effectively engage children and promote vocabulary learning.



**Figure 1: Sample Layout of Media Design**

### **Validation of Animated Video Media Result**

Following the needs analysis, the developed animated video media underwent expert validation. Two experts—one in early childhood education and one in multimedia design—evaluated the content for its appropriateness, educational value, and suitability for young learners. The validation process was based on several criteria, including the alignment with the curriculum, visual appeal, audio quality, and the appropriateness for young children's cognitive and developmental stages.

The expert feedback was overwhelmingly positive. The total validation score was 46 out of 48, with an average rating of 3.8 out of 4. The experts rated the media as highly effective for vocabulary learning in early childhood education, confirming that the videos were well-aligned with educational goals and were engaging and appropriate for the targeted age group. The validation results, as shown in Table 1, indicated that the videos were highly effective, with a total score of 46 out of 48, representing an average rating of 3.8 out of 4. This confirmed that the media were appropriate for use in promoting vocabulary development in early childhood education (Almgren, 2018; Seitz & Kinter, 2022).

**Table 1. Validation results for animated video media**

Criterion	Rating (1-4)
Alignment with curriculum objectives	4
Visual appeal and quality	4
Audio clarity and appropriateness	4
Cognitive appropriateness for young learners	4
Engaging and motivating content	3
Overall effectiveness for vocabulary learning	4

**Note:** The total score of 46 out of 48 (average rating 3.8/4) shows that the media were deemed highly effective for use in early childhood education.

### Small-Scale Trial Results

After the expert validation, the animated video media were tested with a small group of 12 children from TK Anak Soleh Curup 2. The goal of the small-scale trial was to evaluate how the children interacted with the videos and to measure any changes in their vocabulary acquisition.

Before the intervention, the children were assessed with a pre-test, and their average vocabulary score was 17.16, which was classified as "emerging." After exposure to the animated videos, the children were reassessed with a post-test. The results showed a significant improvement, with the average score increasing to 24.83, categorized as "well-developed." This improvement of 7.67 points was confirmed to be statistically significant with a t-test result of -20.387 ( $p < 0.05$ ).

**Table 2. Pre-test and post-test scores in small-scale trial**

Group	Average Pre-Test Score	Average Post-Test Score	Score Change
Group 1 (n=12)	17.16 (Emerging)	24.83 (Well-Developed)	+7.67

The data from Table 2 illustrates that, after exposure to the animated videos, children showed an average improvement of 7.67 points, highlighting the effectiveness of the media in improving vocabulary acquisition.

### Large-Scale Trial Results

Following the small-scale trial, a large-scale trial was conducted across multiple classrooms at TK Anak Soleh Curup 2 to assess the effectiveness of the animated video media on a larger group of students. The large-scale trial involved 24 students, divided into two

classes (A1 and A2). Pre- and post-test assessments were administered to measure vocabulary acquisition.

In this trial, the average pre-test score for both classes was 17.80, which falls within the "emerging" category. After the intervention with the animated videos, the post-test results showed a significant improvement, with an average score of 25.30 for both classes, classified as "well-developed." This increase of 7.50 points was statistically significant, confirmed by a t-test result of -15.273 ( $p < 0.05$ ).

**Table 3. Pre-test and post-test scores in large-scale trial**

Group	Average Pre-Test Score	Average Post-Test Score	Score Change
Class A1 (n=12)	17.80 (Emerging)	25.20 (Well-Developed)	+7.40
Class A2 (n=12)	17.80 (Emerging)	25.40 (Well-Developed)	+7.60

**Note:** The results from the large-scale trial show an average score improvement of 7.50 points across both classes.

### **Statistical Analysis**

A t-test was conducted to assess whether the observed improvement in vocabulary scores was statistically significant. The t-test results revealed a t-value of -20.387, which exceeds the critical t-value of -2.201 (for a significance level of 0.05). This confirms that the improvement in vocabulary scores was statistically significant, supporting the hypothesis that the animated video media contributed positively to the children's vocabulary development.

### **Discussion**

The results of this study align with a growing body of literature supporting the effectiveness of multimedia tools, particularly animated video media, in enhancing vocabulary acquisition among young learners. The significant improvement in vocabulary scores observed in this study underscores the role of multimedia in fostering language development in early childhood education. These findings are consistent with studies that highlight the advantages of using visual and auditory stimuli to promote engagement and memory retention in young learners (Mayer, 2021; Seitz & Kinter, 2022).

### **The Role of Multimedia in Early Vocabulary Acquisition**

The success of the animated videos in improving vocabulary acquisition can be attributed to several key factors. First, the use of dual-coding theory, which posits that presenting information through both visual and auditory channels increases learning

efficiency, played a crucial role in supporting vocabulary retention (Paivio, 2007; Sweller, 2011). By combining pictures and words, the animated videos provided a multisensory experience that helped the children encode new vocabulary more effectively. Research has consistently shown that dual-channel presentations improve cognitive processing and lead to better learning outcomes (Mayer, 2021).

In addition to the cognitive benefits, the interactive nature of animated videos contributed to maintaining children's attention and fostering engagement. Interactive multimedia, such as videos that include sound effects, music, and narration, is known to increase children's motivation to engage with the material, which is crucial for sustaining their focus during learning (Pertiwi et al., 2023). The use of engaging visuals and stimulating audio not only captures children's attention but also enhances their overall learning experience by making abstract vocabulary items more concrete and memorable (Mayer, 2021; Sya'ban et al., 2020).

Furthermore, the cognitive load theory suggests that reducing unnecessary information while presenting content in a clear, structured way maximizes learning (Paas & Sweller, 2014; Sweller, 2011). The animated videos used in this study were designed to minimize extraneous details, ensuring that children could focus on the essential vocabulary being taught. This design principle has been shown to improve both comprehension and retention, especially in early learners who may struggle with excessive cognitive demands (Mayer, 2021; Seitz & Kinter, 2022).

### **Educational Implications**

The significant improvement in vocabulary acquisition observed in this study has important implications for early childhood education. Educators can leverage animated videos as part of a diverse set of instructional tools to enhance language learning in young children. Studies have shown that incorporating multimedia resources into early education curricula can help address challenges associated with vocabulary development, particularly in settings where traditional teaching methods may not be sufficient (Morrow, 2018). The findings of this study underscore the value of interactive multimedia tools in making vocabulary learning more engaging, memorable, and effective.

As Pope (2017) and Mayer (2021) suggest, integrating diverse media formats—such as animation and audio—can significantly enhance the quality of vocabulary instruction, particularly when working with children at various developmental stages. By providing visual cues alongside auditory information, animated videos can help young learners connect words with real-world concepts, which is essential for vocabulary acquisition (Seitz & Kinter, 2022).



This approach not only fosters better engagement but also helps build stronger cognitive connections between words and their meanings.

The positive results observed in this study suggest that animated videos could be a valuable addition to early childhood curricula, especially in classrooms where students have limited exposure to rich vocabulary resources. As previous research has shown, young learners benefit greatly from being exposed to varied and stimulating learning environments (Almgren, 2018; Vygotsky, 1978). Incorporating multimedia tools such as animated videos can bridge the gap between passive learning and active, immersive vocabulary instruction.

### **Limitations and Future Directions**

While this study demonstrates the effectiveness of animated video media in promoting vocabulary development, it is important to consider its limitations. The small sample size of the study may limit the generalizability of the findings. Future research should aim to replicate this study with a larger, more diverse sample to confirm the results across different populations and settings (Pope, 2017). Additionally, longitudinal studies could examine the long-term impact of animated video media on vocabulary retention and other areas of language development, providing more comprehensive insights into the effectiveness of multimedia learning tools (Alhazmi, 2024; Younas & Dong, 2024).

Future studies could also explore the potential of integrating other types of multimedia, such as interactive games or augmented reality, to further enhance vocabulary learning in early childhood. Interactive learning environments that incorporate immediate feedback have been shown to accelerate vocabulary acquisition and provide additional opportunities for reinforcement (Sya'ban et al., 2020). These innovations could be explored to expand on the findings of this study and offer more personalized learning experiences for young children.

### **CONCLUSION**

This study demonstrates the significant potential of animated video media in enhancing vocabulary acquisition among young children. The needs analysis revealed a gap in traditional teaching methods, highlighting the necessity for more engaging, interactive learning tools. The design and development of the animated videos were guided by expert feedback, ensuring educational alignment and suitability for young learners. Results from both the small-scale and large-scale trials confirmed the effectiveness of the animated media, showing a marked improvement in children's vocabulary scores after exposure to the videos.

The validation process further supported the media's potential, with high ratings for content quality and educational value. These findings suggest that animated videos can be an effective tool for language development, offering an engaging alternative to conventional teaching methods. Future research should explore the long-term impact of such media on vocabulary retention and its application in diverse educational settings.

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