

### THE INTRODUCTION OF THE PLANT GROWTH PROCESS THROUGH INTERACTIVE ANIMATED VIDEOS FOR KINDERGARTEN CHILDREN AT ANUBAN SAIBURI ISLAM WITTAYA SCHOOL

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#### Abstrack

This study aimed to analyze the implementation of interactive animated videos in assisting children to understand the process of plant growth at Anuban Saiburi Islam Wittaya School, Thailand. The research employed a descriptive qualitative approach with research subjects consisting of children aged 5 to 6 years and accompanying teachers as additional informants. Data were collected through observation, interviews, and document analysis using triangulation techniques. The findings indicated that the use of interactive animated videos enhanced children's enthusiasm, attention, and active participation in the learning process. The children were able to represent the stages of plant growth through drawings and simple narratives, and they used biological terms accurately. Teachers considered that the media helped deliver complex material in a simpler and more engaging manner, in accordance with the characteristics of early childhood learners who were attracted to moving images, bright colors, and sound. Interactive animated media successfully transformed abstract concepts into concrete experiences through dual coding channels, supporting Mayer's multimedia learning theory. This study supported the integration of digital technology into early childhood science education as an effective, enjoyable, and visually oriented learning alternative.

**Keywords: Plant Growth, Interactive Animated Video, Early Childhood, Learning Media.**

#### INTRODUCTION

Education was one of the processes in developing students' abilities and shaping their character.<sup>1</sup> In addition, the rapid advancement of science and technology also encouraged the field of education to strive for and improve the quality of education.<sup>2</sup> Early childhood education played a very important role in forming the foundational development of children in a holistic manner.<sup>3</sup> In the early stages of life, children experienced a heightened period of sensitivity in assimilating knowledge and skills; therefore, appropriate and meaningful learning during early childhood had a long-term positive impact on their abilities in various aspects of life.<sup>4</sup>

<sup>1</sup> Dewi, A. C., Firdaus, A., Fauzan, A., Maulani, I., Patila, I., & Almes, A. (2024). Pendidikan menjadi pondasi dalam pembentukan karakter peserta didik. *IMA: Jurnal Ilmiah Mahasiswa hlm 55*

<sup>2</sup> Habsy, B. A., Yusiana, A. P. E., Nadya, N., & Satria, A. F. (2024). Pemanfaatan ilmu pengetahuan dan teknologi dalam pendidikan. *Jurnal Bima: Pusat Publikasi Ilmu Pendidikan Bahasa dan Sastra. hlm 301*

<sup>3</sup> Ningrum, N. P. W., Pane, F. M. J., Yani, S. I., & Khadijah. (2022). Pendidikan anak usia dini: Perannya dalam membangun karakter dan tumbuh kembang anak usia dini. *Tematik: Jurnal Penelitian Pendidikan Dasar. hlm 99*

<sup>4</sup> Marwany, M., & Kurniawan, H. (2020). *Bermain dan permainan anak usia dini*. PT Remaja Rosdakarya. hlm 11.

Engaging learning activities developed the aspects of growth and development in early childhood.<sup>5</sup> In a more complete sense, animation was a series of continuously moving images that had a connection with one another.<sup>6</sup> The use of interactive learning media was able to develop speaking skills by using simple sentences with proper and correct language.<sup>7</sup> This study aimed to produce a learning media product in the form of interactive learning media. The interactive learning media made it easier and more engaging for children to learn. With the advancement of technology, teachers were able to use more flexible learning media that could be adapted to existing needs.

According to Wulan Suci, the introduction of science to early childhood was very important because when children interacted with various scientific objects, they viewed science as something extraordinary, something to be discovered and considered interesting, as well as something that provided knowledge or stimulated them to explore and investigate it.<sup>8</sup> Anuban children often faced difficulties in understanding the process of plant growth because of its dynamic nature and the need for visual-conceptual understanding, which was difficult to explain using only static images. This led to low comprehension and limited motivation in exploring basic science at an early age.

Animation was a series of still images presented continuously, each connected to the previous one, and combined either traditionally or digitally to create the illusion of motion. Through instructional media in the form of animation, students were able to conduct indirect observation more efficiently in terms of time use. It was also important to note that interactive animated videos were learning media that combined elements of sound, motion, images, text, and graphics in an interactive manner. Equipped with clear and easily understood guiding narration, these interactive animated videos helped students learn the material more effectively. In addition, interactive animated videos created a reciprocal relationship between the media and the learners, so that students were not only watching and listening to the material.<sup>9</sup>

*Anuban Saiburi Islam Wittaya School*, as one of the educational institutions in Thailand, faced challenges in teaching the concept of plant growth to kindergarten students in an engaging and easily understandable way. Initial observations indicated that the conventional teaching methods previously used had not been optimal in fostering a deep understanding of the plant growth

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<sup>5</sup> Dewi, K. (2020). Pentingnya media pembelajaran untuk anak usia dini. hlm 3

<sup>6</sup> Putra, D. G. S. D., Wibisono, A. P., & Yasa, G. P. P. A. (2024). Perkembangan media pembelajaran berbasis animasi di Bali. *Anima Rupa: Jurnal Animasi* hlm 58

<sup>7</sup> Rahayu, M., Rusdiyani, I., & Fadlullah. (2023). Pengembangan multimedia pembelajaran interaktif dalam menstimulasi perkembangan berbicara anak usia 5–6 tahun. Hlm 20

<sup>8</sup> Windayani, N. L. I. (2024). *Sains untuk anak usia dini*. PT Literasi Nusantara Abadi Grup. hlm 25

<sup>9</sup> Daniati, N. T., Mulyadi, R., & Nugroho, A. (2023). *Dasar-dasar animasi untuk SMK/MAK kelas X*. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. hlm 110

process. Children tended to lose focus when the teacher attempted to visualize the process, as it required a relatively long duration and could not be directly observed within a single learning session.

## **THEORETICAL REVIEW**

### **1. Contextual Science Learning for Children**

Science learning for early childhood had to take into account local wisdom and the child's surrounding environment. Nugraha emphasized that the development of science learning for young children had to use a contextual approach that utilized the surrounding environment as a learning resource. In the context of learning about plant growth, this meant using plants that were familiar and easily found in the child's environment.<sup>10</sup>

Rachmawati and Kurniati explained that strategies for developing creativity in kindergarten children could be implemented through contextual science learning. Learning about plant growth could use food crops such as mung beans, corn, and rice, or vegetables such as water spinach, spinach, and mustard greens, which were easy to find. The use of local plants not only made learning more relevant but also helped children understand the natural richness.<sup>11</sup>

### **2. Educational Technology and Game-Based Education**

The development of educational technology showed a very positive trend, especially in the advancement of game-based education for early childhood. Wirayuda et al., in their study, successfully developed a game-based education using interactive multimedia focused on the language aspect of early childhood, which achieved a very high level of validity. This study showed that game-based educational technology had strong potential to be developed in various aspects of early childhood learning, including science education.<sup>12</sup>

Novitasari and Fauziddin explained that the development of technology-based learning media for early childhood had to consider several important aspects. First, the characteristics of Indonesian game-based education needed to use characters and settings that were familiar to children. Second, the use of the Indonesian language that was easily understood by children became the key to success. Third, the integration of Pancasila values into the learning content was essential for character development. Fourth, the technology used had to be affordable and easily accessible to all segments of society.<sup>13</sup>

### **3. Animation as a Medium for Science Learning**

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<sup>10</sup> Ahmad Susanto, *Perkembangan Anak Usia Dini: Pengantar dalam Berbagai Aspeknya*, edisi revisi (Jakarta: Kencana, 2024), hlm 25.

<sup>11</sup> Yeni Rachmawati dan Euis Kurniati, *Strategi Pengembangan Kreativitas pada Anak Usia Taman Kanak-kanak* (Jakarta: Kencana, 2024), hlm 47.

<sup>12</sup> I Komang Agus Wirayuda dkk., "Game Education Berbasis Multimedia Interaktif pada Aspek Bahasa Anak Usia Dini," *Jurnal Pendidikan Anak Usia Dini Undiksha* 12, no. 1 (2024): hlm 50.

<sup>13</sup> Yuliani Novitasari dan Mohammad Fauziddin, "Pengembangan Media Pembelajaran Berbasis Teknologi untuk Anak Usia Dini," *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini* 7, no. 5 (2023): hlm 5238.

The development of educational animation for science learning had great potential. Munadi explained that animated learning media had the advantage of visualizing processes that could not be directly observed, such as plant growth, which normally took a relatively long time. Through animation, growth processes that usually required weeks could be presented within a few minutes while still maintaining scientific accuracy.<sup>14</sup>

Rusman et al. emphasized that learning based on information and communication technology could develop teachers' professionalism in teaching. Well-developed educational animation was not only beneficial for students but also helped teachers deliver learning materials more effectively and engagingly.<sup>15</sup>

#### 4. Evaluation and Assessment of Learning

The evaluation of the effectiveness of learning media was an important aspect that could not be overlooked. Sujiono and Sujiono explained that creative play based on multiple intelligences could serve as an effective evaluation tool for early childhood. In the context of interactive animated videos about plant growth, the evaluation could be conducted through observation of the children's responses, their ability to retell the plant growth process, and their ability to apply the acquired knowledge in practical activities.<sup>16</sup>

Montolalu et al. emphasized that children's play and games could serve as authentic assessment media. The evaluation of learning through interactive animated videos could be carried out using various approaches such as direct observation of children's behavior while interacting with the media, portfolios of children's work related to plant learning, assessment through play integrated with the learning material, and documentation of the learning process involving parents.<sup>17</sup>

### RESEACH METHODS

This study employed a descriptive qualitative approach, which aimed to describe and deeply understand how interactive animated videos could assist *Anuban* children in comprehending the process of plant growth. This method was chosen because the researcher intended to explore the responses, learning experiences, and perceptions of both children and teachers regarding the use of animated media in a naturalistic manner.<sup>18</sup> The research subjects consisted of children aged 5 to 6 years enrolled at Anuban Saiburi Islam Wittaya School, Thailand, along with classroom teachers serving as additional informants.<sup>19</sup> The study was conducted directly within the school environment

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<sup>14</sup> Yudhi Munadi, *Media Pembelajaran: Sebuah Pendekatan Baru* (Jakarta: Gaung Persada Press, 2023), hlm 62.

<sup>15</sup> Rusman dkk., *Pembelajaran Berbasis Teknologi Informasi dan Komunikasi: Mengembangkan Profesionalitas Guru* (Jakarta: Rajawali Pers, 2024), hlm 88.

<sup>16</sup> Yuliani Nurani Sujiono, *Konsep Dasar Pendidikan Anak Usia Dini* (Jakarta: PT Indeks, 2023), hlm 15.

<sup>17</sup> B.E.F. Montolalu dkk., *Bermain dan Permainan Anak* (Jakarta: Universitas Terbuka, 2024), hlm 33.

<sup>18</sup> Feny Rita Fiantika dkk., *Metodologi Penelitian Kualitatif* (Padang: PT. Global Eksekutif Teknologi, 2022), hlm.2

<sup>19</sup> Diana, N., & Mesiono. (Eds.). (2016). *Dasar-dasar pendidikan anak usia dini: Mewujudkan sumber daya manusia berkeunggulan*. Perdana Publishing. hlm 4

to obtain contextual and authentic data.<sup>20</sup> Data collection in qualitative research generally included observation, interviews, and document analysis. These various data sources were then compared using a process known as triangulation. The data in this qualitative study were analyzed by reading and reviewing the collected data (such as observation notes and interview transcripts) to identify emerging themes and patterns.<sup>21</sup>

## RESULTS AND DISCUSSION

### RESULT

Based on the results of implementing interactive media, the children showed high enthusiasm during the learning process using interactive animated videos.<sup>22</sup> The majority of students appeared actively engaged in watching the screen, responded with cheerful facial expressions, and made spontaneous movements or comments.<sup>23</sup> This indicated that the use of dynamic visual media helped them understand the stages of plant growth in an enjoyable and meaningful way.<sup>24</sup>

The results of the documentation analysis, such as the children's drawings and verbal statements, showed that the children were able to represent the process of plant growth through drawings or simple stories.<sup>25</sup> Most of the students drew the process starting from a seed growing roots, followed by the stem and leaves, as well as flowers and fruits. They also used terms such as "grow" and "develop" appropriately, which had previously rarely appeared in their daily conversations. This showed that the children were not merely observing visuals, but internalized simple biological concepts through the visual and narrative reinforcement provided in the animated video.<sup>26</sup>

The teacher stated that the use of interactive animated videos helped convey complex material, such as the process of plant growth, in a simpler and more engaging manner.<sup>27</sup> According to them, this medium was highly relevant to the characteristics of early childhood, who had a strong interest in moving images, bright colors, and sounds.<sup>28</sup> The teacher also appreciated the interactive

<sup>20</sup> Ardila, Y. P., Fatikah, E. S. P., Muslichah, A. D., Nurcahyani, M. D., Saputra, M. R., & Muhtarom, T. (2025). Analisis pembelajaran kontekstual dalam membentuk karakter peduli lingkungan pada peserta didik SD IT Alam Nurul Islam. *Universitas PGRI Yogyakarta*. hlm 1770

<sup>21</sup> Zuchri Abdussamad, *Metode Penelitian Kualitatif* (Makassar: Syakir Media Press, 2021), hlm.103.

<sup>22</sup> Fikri, H., & Madona, A. S. (2018). *Pengembangan media pembelajaran berbasis multimedia interaktif*. Samudra Biru. hlm 12

<sup>23</sup> Fahrurrozi dkk (2022). *Model-model pembelajaran kreatif dan berpikir kritis di sekolah dasar*. UNJ Press. hlm 157

<sup>24</sup> Budiman, H. (2016). Penggunaan media visual dalam proses pembelajaran. *Al-Tadzkiyyah: Jurnal Pendidikan Islam*, 7, hlm 16

<sup>25</sup> Adiputra, I. M. S., Trisnadewi, N. W., Oktaviani, N. P. W., Munthe, S. A., Hulu, V. T., Budiastutik, I., Faridi, A., Ramdany, R dkk. (2021). *Metodologi penelitian kesehatan*. Yayasan Kita Menulis. hlm 156

<sup>26</sup> Hasan, M., dkk (2021). *Media pembelajaran*. Tahta Media Group. hlm 2

<sup>27</sup> Dewi, N. K. K., Sukmana, A. I. W. I. Y., & Simamora, A. H. (2024). Inovasi media pembelajaran: Video pembelajaran berbasis animasi meningkatkan hasil belajar matematika siswa sekolah dasar. *Jurnal Media dan Teknologi Pendidikan*. Hlm 151

<sup>28</sup> Suwartini, A., Saadiah, A. D., & Atikah, C. (2024). Peningkatan kemampuan mengenal warna melalui penggunaan media realia pada anak kelompok A di TK Salaman Alfarizi Kecamatan Wanasalam Kabupaten Lebak. *Pendas: Jurnal Ilmiah Pendidikan Dasar*. hlm 223

features in the video that encouraged children to participate actively, rather than merely being passive viewers. The teacher considered this medium to be a form of informal assessment, as children's responses during and after watching allowed the teacher to evaluate their level of understanding without the need for written tests.<sup>29</sup>

**Picture 1. Introduction to Plant Growth Process**



<sup>29</sup> Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2022). *Panduan pembelajaran dan asesmen: Pendidikan anak usia dini, pendidikan dasar, dan menengah*. Badan Standar, Kurikulum, dan Asesmen Pendidikan. hlm 11

**Picture 3. Group Photo of Students and Homeroom Teacher**



DIS

The research findings showed that the use of interactive animated videos was able to enhance children's attention, participation, and understanding of the concept of plant growth.<sup>30</sup> This was in line with the multimedia learning theory proposed by Mayer, which stated that children learned more effectively when information was delivered through a structured combination of visual and auditory elements.<sup>31</sup> Interactive animated media facilitated the learning process through dual coding channels, allowing children to more easily understand abstract information such as the biological process of plant growth.<sup>32</sup>

Children's ability to recognize and sequence the stages of plant growth demonstrated that interactive visual media successfully transformed abstract concepts into concrete experiences. This was supported by the findings of Zulherman et al., which stated that educational animation significantly enhanced early childhood understanding of basic science.<sup>33</sup> The animated video used presented the process of plant growth in a sequential and visually engaging manner, allowing children to gradually construct their cognitive schema.<sup>34</sup>

The high level of active participation from students during the learning process showed that the interactive elements in the media played an important role in fostering children's intrinsic

<sup>30</sup> Raksun, A., Cahyani, A., & Nurfianah. (2025). Penggunaan media video animasi untuk meningkatkan pemahaman peserta didik SMAN 10 Mataram pada materi reproduksi tumbuhan. *Jurnal Ilmiah Profesi Pendidikan*. hlm 1773

<sup>31</sup> Rahayu, P., Marmoah, S., & Budiharto, T. (2023). Analisis penerapan prinsip Mayer pada multimedia digital dalam pembelajaran matematika di kelas IV sekolah dasar. hlm 354

<sup>32</sup> Andrasari, A. N., Haryanti, Y. D., & Yanto, A. (2022,). *Media pembelajaran video animasi berbasis KineMaster bagi guru SD*. Dalam Seminar Nasional Pendidikan FKIP UNMA 2022: Transformasi Pendidikan di Era Super Smart Society 5.0 hlm 79

<sup>33</sup> Melati, E., dkk (2023). Pemanfaatan animasi sebagai media pembelajaran berbasis teknologi untuk meningkatkan motivasi belajar. *Journal on Education*, hlm 733

<sup>34</sup> Indrawan, I., dkk (2020). *Media pembelajaran berbasis multimedia*. CV. Pena Persada. hlm 2

motivation.<sup>35</sup> This was consistent with the view of Clark & Mayer (2022), who stated that interactive videos helped learners stay focused and provided opportunities for learner control and personalization.<sup>36</sup> The children not only absorbed information but were also actively engaged through simple questions in the video that encouraged them to think, respond, and engage in discussion.<sup>37</sup>

Learning presented through animated videos became more meaningful and contextual because it depicted situations that could be related to the children's daily experiences.<sup>38</sup> Processes such as planting, watering, and observing plant growth had become part of the children's daily lives, making the information in the video easily relatable to real-life experiences.<sup>39</sup> This supported the principle of Contextual Teaching and Learning (CTL), in which learning became effective when students were able to connect the subject matter to their real-life experiences.<sup>40</sup>

The teacher at Anuban Saiburi Islam Wittaya School acted as a facilitator who connected the content in the video with the children's local context. This was important in the constructivist approach, in which children constructed their own knowledge through interaction with media and guidance from the teacher.<sup>41</sup> The teacher also played a key role in adapting the media to the characteristics of early childhood, such as short attention spans and a strong interest in images, sounds, and movements.<sup>42</sup>

The use of digital media such as interactive animated videos was highly relevant in the context of 21st-century education, which emphasized digital literacy, creativity, and technology-based learning.<sup>43</sup> This study supported the idea that science learning for children did not always have to be verbal and textual, but instead should utilize technology that could provide active, enjoyable, and visually oriented learning experiences.<sup>44</sup>

## CONCLUSION

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<sup>35</sup> Arum, D. S., & Hanif, M. (2023). Strategi pembelajaran dalam penguatan motivasi untuk meningkatkan prestasi akademik siswa. *Jurnal Pendidikan Generasi Nusantara (JPGenus)*,

<sup>36</sup> Syamsuri, dkk (2023). *Media pembelajaran berbasis digital*. [Edisi pertama]. Unesco Press.hlm 6

<sup>37</sup> Gui, M. D., dkk (2024). *Membangun moral peserta didik di zaman digital*. PT Literatus Digitus Indonesia.hlm 6

<sup>38</sup> Purnama, A. M., & Kusmiyati. (2024). Pengaruh media pembelajaran video animasi terhadap minat dan kemampuan membaca siswa kelas III di UPTD SD Negeri Pendabab 1 Kamal. *Eductum: Jurnal Literasi Pendidikan*. hlm 10

<sup>39</sup> Santoso, J. T., Wibowo, M. C., & Wibowo, A. (2023). *Kemampuan berpikir kritis*. Universitas STEKOM..hlm 5

<sup>40</sup> Sastradiharja, E. J., Siskandar, & Khoiri, I. (tahun). *Model pembelajaran CTL (Contextual Teaching and Learning) pada mata pelajaran PAI dan implementasinya di SMP Islam Asyasyakirin Pinang Kota Tangerang*. Institut PTIQ Jakarta.hlm 10

<sup>41</sup> Salsabila, S. S., & Gumiandari, S. (2022). Pendekatan konstruktivis sosial dalam pembelajaran.hlm 171

<sup>42</sup> Kuliayah. (2020). Hubungan kemampuan guru bercerita dengan kemampuan anak usia 5–6 tahun dalam menyimak. *Al-Auladi: Journal Pendidikan Islam Anak Usia Dini*,hlm 3

<sup>43</sup> Cahya, U. D., Simarmata, J., Iwan, Suleman, N., Nisa, K., Nasbey, H., Muharlisiani, L. T., Karwanto, Putri, M. D., Chamidah, D., Pagiling, S. L., & Rahmadani, E. (2023). *Inovasi pembelajaran berbasis digital abad 21*. Yayasan Kita Menulis.hlm 3

<sup>44</sup> Santoso, J. T., Wibowo, M. C., & Wibowo, A. (2023). *Riset kelanggengan bisnis dalam ekosistem digital (business sustainability research in digital ecosystems)*. Universitas STEKOM.hlm 117



Based on the research findings, the use of interactive animated videos proved effective in increasing attention, active participation, and early childhood understanding of the concept of plant growth. This media not only presented information in an engaging visual and audio format but also integrated interactive elements that encouraged children to think, respond, and engage in discussion. Children were able to represent biological processes concretely through simple drawings and narratives, demonstrating the internalization of previously abstract concepts. The support of teachers as facilitators, along with the connection of the material to children's daily experiences, strengthened the effectiveness of the learning process. Thus, interactive animated videos were relevant and meaningful media for early childhood science learning in the digital era.

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