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DEVELOPMENT OF ANIMATION VIDEOS IN SCIENCE LEARNING FOR STUDENTS OF GRADE IV SD

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ABSTRACT

This study aims to develop animated videos. The type of research used in this study is research and development (R&D). This study uses the 4-D development model (Four D). This model was developed by Sivasailam Thiagarajan, Dorothy S. Semmel, and Melyn I Semmel (1974). The development of the 4-D model consists of 4 stages, namely, define, design, development and disseminate. (Thiaagarajan, 1974). The research was conducted at SDN 026560 Binjai. This research was conducted in the even semester of the 2024/2025 school year. The subjects in the study were validators and grade IV students ofSDN 026560 Binjai. The object of this study was animated videos. Data collection techniques used were observation, questionnaires and tests. Based on the results of the study, it is known that Based on the validation results by material experts with a percentage of 89.90% it is categorized as very feasible, language experts with a percentage of 91.20%, and media experts with a percentage of 93.65% are categorized as very feasible. So, it can be concluded that animated videos are very feasible to be used for grade IV students at SDN 026560 Binjai.

Keywords: Development, Animated Video, IPAS

ABSTRAK

Penelitian ini bertujuan untuk mengembangan video animasi. Jenis penelitian yang digunakan pada penelitian ini yaitu penelitian dan pengembangan (R&D). Penelitian ini menggunakan model pengembangan 4-D (Four D). Model ini dikembangkan oleh Sivasailam Thiagarajan, Dorothy S. Semmel, dan Melyn I Semmel (1974). Pengembangan model 4-D terdiri atas 4 tahapan yaitu, define, design, development dan disseminate. (Thiaagarajan, 1974). Penelitian dilaksanakan di SDN 026560 Binjai. Penelitian ini dilaksanakan pada semester genap tahun pelajaran 2024/2025. Subjek dalam penelitian yaitu validator dan peserta didik kelas IV SDN 026560 Binjai. Objek dalam penelitian ini yaitu video animasi. Teknik pengumpulan data yang digunakan observasi, angket dan tes. Berdasarkan hasil penelitian diketahui bahwa Berdasarkan hasil validasi oleh ahli materi dengan persentase 89,90% dikategorikan sangat layak, ahli bahasa dengan persentase 91,20%, dan ahli media dengan persentase 93.65% dikategorikan sangat layak. Maka, dapat disimpulkan bahwa video animasi sangat layak digunakan untuk siswa kelas iv di SDN 026560 Binjai.

Kata Kunci: *Pengembangan, Video Animasi, IPAS*

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INTRODUCTION

The rapid development of digital technology today has had a significant impact on various sectors of life, including in the world of education. The application of technology in the teaching and learning process is something that cannot be avoided, especially in efforts to improve the quality of learning in the 21st century. Educational technology allows teachers and students to access wider information, facilitate the process of delivering material, and create more interactive and enjoyable learning (Haleem et al., 2022). One real manifestation of the use of technology in learning is the use of digital media such as animated videos.

At the elementary school level, especially grade IV, students are at the concrete cognitive development stage. This is in line with Imanulhaq & Ichsan (2022) who said that the worldview of children at the concrete operational stage (7-12 years) is different from the views of parents or those who are more mature. They tend to understand concepts more easily through attractive visual media and contextual presentation. Therefore, the use of learning media that is in accordance with the characteristics of student development is very important in supporting the effectiveness of learning. One of the subjects that requires good conceptual understanding is Natural and Social Sciences (IPAS). IPAS is a combined learning between sciences that examines living things and inanimate objects in the universe and their interactions, and examines human life as individuals as well as social creatures who interact with their environment (Burhan et al., 2024).

Science learning combines concepts from science and social sciences that are closely related to phenomena in the surrounding environment, so a learning approach is needed that is able to present material in a concrete and interesting way.

Based on the results of observations that researchers have conducted at SDN 026560 Binjai, it is known that the science learning process still faces various obstacles, learning is still dominated by conventional methods such as lectures, and the use of textbooks as the main source. This causes students to be less interested and easily bored in following lessons. Understanding concepts also tends to be rote, not the result of an active thinking process. In addition, the limitations of innovative learning media make it difficult for teachers to convey complex materials, especially those that are abstract or require visualization.

To answer these challenges, an innovation in learning media is needed that can accommodate students' learning needs more optimally. One solution that can be used is animated videos. Animated videos are videos that are supported by moving images in them so that they look more attractive to students (Permatasari et al., 2019). Several advantages of using animated videos as media are explained by Munir (2015), namely (a) the level of effectiveness and speed in delivering material is higher, (b) repetition in certain discussions can be done, (c) videos can explain a process and event in detail andreal, (d) the ability to make abstract objects or materials into concrete ones, (e) durable and low level of damage so that they can be applied repeatedly, (f) requires teacher skills in operating technology, (g) improves basic skills and adds new experiences for students, and (h) this animated media is relevant to learning objectives and the curriculum which

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focuses learning activities on students.

Animated videos are not only able to attract students' attention, but can also increase learning motivation, help visualize abstract material, and provide a more enjoyable and in-depth learning experience. In other words, animated videos are able to bridge the gap between subject matter and student understanding. In this context, teachers not only act as material deliverers, but also as learning designers who are able to utilize technology to create an active and creative learning environment.

Based on this background, this study focuses on the development of animated videos based on Animaker as a learning media for science for fourth grade students of SDN 026560 Binjai. The purpose of this study is to produce valid, practical, and effective learning media in improving students' understanding of science material. With this media, it is expected to create more interesting, interactive, and capable learning improve student learning outcomes, and provide alternative teaching media that are applicable for teachers in integrating technology into daily learning activities.

RESEARCH METHODS

The type of research used in this study is research and development (R&D). This study uses a 4-D development model. This model was developed by Sivasailam Thiagarajan, Dorothy S. Semmel, and Melyn I Semmel (1974). The development of the 4-D model consists of 4 stages, namely, define, design, development and disseminate. (Thiaagarajan, 1974).

The research was conducted at SDN 026560 Binjai. This research was conducted in the even semester of the 2024/2025 school year. The subjects in the study were validators and grade IV students of SDN 026560 Binjai. The object of this study was animated videos. Data collection techniques used were observation, questionnaires and tests.

Table 1. Likert Scale

No	Answer	Score
1	Strongly agree	5
2	Agree	4
3	Doubtful	3
4	Don't agree	2
5	Strongly disagree	1

(Lubis et al., 2023)

The total assessment score can be calculated using the following formula:

$$P = \frac{Jumlah\ skor\ hasil\ pengumpulan\ data}{Jumlah\ skor\ maksimal\ ideal} \times 100\%$$

(Sugiyono, 2018)

Table 2. Eligibility Criteria

Percentage	Eligibility
81% - 100%	Very worthy
61% - 80%	Worthy
41% - 60%	Not worthy
0%-40%	Totally unworthy

((Sugiyono, 2018)

RESEARCH RESULTS AND DISCUSSION

Research result

This study uses a 4-D model development model consisting of 4 stages, namely, define, design, development and disseminate. The product developed is an animated video. The following are the stages in developing an animated video as follows:

1. **Stage *Define***

   This stage aims to identify and formulate learning needs comprehensively. The analysis carried out is as follows:

a. Needs analysis, observations and interviews were conducted with teachers and students at SDN 026560 Binjai to identify problems in science learning, especially related to the lack of interesting and interactive learning media.
b. Curriculum analysis, analyzing learning objectives (TP) and grade IV science teaching materials that will be developed into animated video content.
c. Analysis of student characteristics, examining the learning styles and cognitive abilities of fourth grade students who tend to be visual and like multimedia based learning.
d. Analysis of learning objectives, compiling learning objectives to be achieved through animated video media.
e.

2. **Stage *Design***
At this stage, the author makes an initial draft of the learning media. Activities include:
a. Compiling an animated video storyline based on science and natural sciences material, which includes narrative text, visual illustrations, animations, and transitions.
b. Determine the Animaker platform as a media development tool, as well as supporting devices such as laptops, audio, and digital illustrations.
c. Designing assessment instruments to measure the feasibility of media (expert and user questionnaires), as well as the effectiveness of media on student understanding (learning outcome tests).
d. Sketching and planning animation elements, narratives, and visual displays according to student characteristics.

3. **Stage *Development***
This stage is the implementation of the design plan into a real product, as well as testing and revision. The steps in this stage are as follows:
a. Develop videos using animaker based on storyboards and design results.
b. Involve media experts and material experts to assess the appropriateness of content, appearance, and suitability of media for learning objectives.
c. Make media improvements based on input from validators.
d. Applying media to a number of fourth grade students to see the response, appeal, and initial effectiveness of the media in learning.
e. Collecting data from student and teacher response questionnaires and learning outcome tests to assess media quality.

The validation results that have been carried out by media experts, material experts and language experts are as follows:

Table 4. Animated Video Validation Results

No	Validators	Percentage	Criteria
1	Subject matter expert	89.90%	Very worthy
2	Linguist	91.20%	Very worthy
3	Media expert	93.65%	Very worthy

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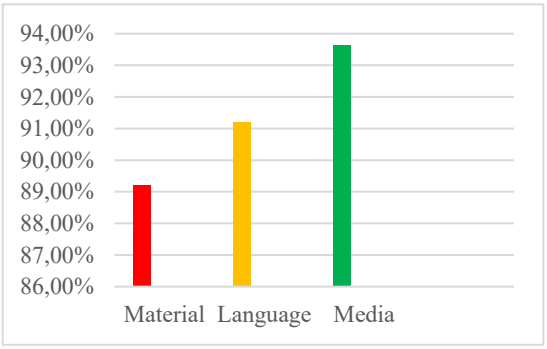

4. **Stage *Disseminate***

   This stage is the distribution and implementation of the animated video that has been developed. In this research stage, the following can be done:

   a. Implementing media in larger classes or multiple classes to obtain broader data.
   b. Providing training or explanations to science teachers on how to use animaker based animated video media in learning.
   c. Compiling research reports and disseminating development results in the form of scientific articles, seminars, or teacher forums to encourage the use of digital media in science learning.

Research Discussion

The feasibility of animated videos as learning media in this study was assessed based on the validation results by material experts, language experts and media experts. This assessment aims to determine whether the animated videos developed have met the criteria as media that are suitable for use in the science learning process in grade IV.

Based on the validation results by material experts with a percentage of 89.90% categorized as very feasible, language experts with a percentage of 91.20%, and media experts with a percentage of 93.65% categorized as very feasible. So, it can be concluded that animated videos are very feasible to be used for grade IV students at SDN 026560 Binjai.

This research is supported by several previous studies, including research conducted by Suryani et al (2025) which states that the use of Canva based animated video media is feasible to use. Putri et al., (2025) said that Procreate-based animated videos are very practical and valid for use as learning media. The recommendations of this study include the application of similar media in learning other topics to support improving the quality of education at the elementary level. This is also supported by research by Sari et al., (2024) which states that animated videos can be the right choice as effective learning media in this digital era.

CONCLUSION

The research was conducted at SDN 026560 Binjai. The research used 4-D models consisting of 4 stages, namely, define, design, development and disseminate. Based on the results of the study, it is known that Based on the validation results by material experts with a percentage of 89.90% it is categorized as very feasible, language experts with a percentage of 91.20%, and media experts with a percentage of 93.65% are categorized as very feasible. So, it can be concluded that animated videos are very feasible to use for grade IV students at SDN 026560 Binjai.

REFERENCES

Burhan, MA, Darniyanti, Y., & Ansori, L. (2024). *The Influence of Animated Video Learning Media on Science Subjects for Grade V at SD Negeri 10 Koto Baru. Didactics: Scientific Journal of PGSD STKIP Subang*,*10*(3), 195-203.

Haleem, A., Javaid, M., Qadri, M.A., & Suman, R. (2022). *Understanding the role of digital technologies in education: A review. Sustainable operations and computers*,*3*, 275-285.

Imanulhaq, R., & Ichsan, I. (2022). *Analysis of Piaget's cognitive development theory at the concrete operational stage of children aged 7-12 years as a basis for learning media needs. Waniambey: Journal of*

Islamic Education,*3*(2), 126-134.

Lubis, RR, Dwiningrum, SIA, & Zubaidah, E. (2023). *Development Powtoon Animation Video in Indonesian Language Learning to Improve Student Learning Outcomes Elementary Schools. Journal of Computer Science, Information Technology and Telecommunication Engineering*,*4*(2), 427-433.

Munir, (2012). *Multimedia Concepts & Applications in Education.* Bandung: Alfabeta.

Permatasari, IS, Hendracipta, N., & Pamungkas, AS (2019). *Development of Hands Move Animation Video Learning Media with Environmental Context in Social Sciences Subjects. Journal of Elementary Education and Learning*, 6(1), 34–48.Https://Doi.Org/10.24042/Terampil.V6i1.4100.

Putri, MA, Hakim, M., Sobri, M., & Nurwahidah, N. (2025). *Development of Procreate-Based Animated Video Media on Water Cycle Material for Grade V of Mataram 5th Elementary School. Journal of Education, Science, Geology, and Geophysics (Geo Science Ed Journal)*,*6*(1), 365-370.

Sugiyono. (2018). *Quantitative, Qualitative, and R&D Research Methods*. Publisher: Alfabeta Bandung.

Suryani, IP, Murwindra, R., & Irfandi, I. (2025). Development of Canva-Based Animated Video Media on Reaction Rate Material for Class XI Science of Senior High School/Vocational High School.*JOM FTK UNIKS (FTK UNIKS Student Online Journal)*,*5*(1), 79-84.

Thiagarajan, Sivasailam; And Others. (1974). *Instructional Development for Training Teachers of Exceptional Children: A Sourcebook*. Indiana Univ., Bloomington. Center for Innovation In. (Mc).

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