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ANIMART Learning Media Based on Education Through Art for Elementary School Children Material on Learning About Animals

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Abstract: This study aims to develop, determine feasibility, and test the effectiveness of ANIMART learning media based on Education Through Art in improving the learning outcomes of third-grade students about animals. This study uses the ADDIE model research and development method. Data collection techniques were carried out through observation, interviews, questionnaires, documentation, as well as pre-tests and post-tests. Data analysis used descriptive analysis, expert validity testing, paired sample t-test, and N-Gain calculation. The results showed that the ANIMART media was designed in the form of animated videos that integrated the concept of animal movement with dance elements through the Education Through Art approach, so that students could learn visually, kinesthetically, and enjoyably. This media is unique in that it combines IPAS material with movement art activities that encourage active student involvement. Validation results by media experts, IPAS material experts, and dance material experts show that the media is in the highly feasible category after one revision. The effectiveness test results show a significant difference between the pre-test and post- test scores (Sig. 0.002 < 0.05) with an N-Gain value of 0.57, which is classified as moderate. Thus, ANIMART media is quite effective in improving student learning outcomes.

Keywords: ANIMART; Education Through Art; Elementary School; Learning Media; Learning Outcomes

Introduction

Education is one of the means of developing human potential in order to enlighten the nation. Education plays an important role in helping students acquire knowledge, build character, and improve their quality of life. Based on Law No. 20 of 2003 concerning the Education System, it is explicitly stated that education is a conscious and planned effort to create a learning environment and learning process that allows students to be actively involved in developing their potential (Norozi, 2025; Zhang et al., 2025). The goal is for students to have religious spiritual strength, be able to control themselves, have good character, be intelligent, and have skills that are useful for themselves, the community, the nation, and the state. Learning is a unified whole that encompasses material, facilities, and interrelated steps that play a role in achieving learning objectives (Dursun & Aykan, 2025; Kreijkes & Greatorex, 2024). In elementary school learning, one of the subjects that emphasizes direct experience is Natural and Social Sciences (IPAS). IPAS learning encourages students to understand natural phenomena and the surrounding environment through observation and exploration activities. One of the materials in third grade is "Getting to Know Animals," which is closely related to the daily lives of students. Based on interviews conducted in Grade III of SDN 1 Lamuk, Purbalingga Regency, it was found that students' interest and activity in participating in Natural

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and Social Sciences (IPAS) learning on the material "Getting to Know Animals" was low. The learning process is always teacher-oriented. The learning media used by teachers is not varied and is still limited to pictures, so many students are not active. This low level of active involvement has an impact on the students' lack of understanding of the material, which ultimately contributes to low learning outcomes. This condition is not in line with the characteristics of the independent curriculum, which emphasizes student involvement in the learning process (student-centered) (Martín-Alguacil & Avedillo, 2024; Shah et al., 2024).

One approach that can be used to increase student engagement in learning is Education Through Art (ETA). This approach utilizes art as a means to help students understand learning in a more creative and meaningful way. The idea of Education Through Art was put forward by Plato in his thesis, which states that "Art should be the basis of education." This shows that art has an important role and function in education, namely that art is seen as a tool or medium for achieving educational goals, not just as subject matter (Cahyo et al., 2022; Vexler et al., 2024). In addition, Jusslin (2022); Nkosi (2025) states that dance can be implemented through two approaches, one of which is education through art, which means that art is used as a tool not for the sake of art itself, but as a means to achieve educational goals. The Education Through Art approach is also in line with Gardner's Multiple Intelligence theory, which states that human intelligence is not limited to intellectual intelligence alone, but consists of various types of intelligence such as linguistic, logical- mathematical, visual-spatial, kinesthetic, musical, interpersonal, intrapersonal, naturalistic, and existential (Fadhilaturrahmi et al., 2024; Navaitienė & Stasiūnaitienė, 2021). Artistic activities such as dancing, role-playing, and other creative activities can help develop students' kinesthetic intelligence, which is the ability to use the body skillfully to express ideas and feelings. Therefore, the use of artistic elements in learning can be an effective strategy to support the optimal development of students' various potentials (Bhardwaj et al., 2025; Kubik et al., 2021).

The use of artistic elements in learning can be done through various activities, one of which is through dance, namely movement. Art in the context of education can be used as a learning medium to help students express themselves, develop creativity, and increase self-confidence (Fajrie et al., 2024; Muthmainah & Yahya, 2025). Learners who have self-confidence will be more courageous in performing in front of others and more active in participating in learning activities. Therefore, integrating artistic elements such as movement into learning media can be an effective strategy to increase learner engagement in the learning process, which also has an impact on learner learning outcomes. Based on the results of a literature review of previous studies, it has been shown that animated video media can improve student learning outcomes. Research conducted by Darling-Hammond et al. (2020); Kusnulyaningsih et al. (2022) developing Animation Video-Based Learning Media in Cultural Arts and Crafts for Grade IV at SDN 39 Mataram showed that the development of animation video media tested on 15 students obtained a percentage of 90.41% with a "very good" criterion. This finding indicates that the use of animated videos can contribute to improving student learning outcomes. Another supporting study conducted by Hendra & Kurniati (2024); Huang et al. (2025) conducted a study entitled "Development of Animation-Based Learning Media with a Guided Inquiry Learning Model to Improve Student Motivation and Learning Outcomes." The results showed that during the field trial phase, 33 students in a class using animated media and 32 students in a class not using animated media at SMAN 11 Makassar achieved a class mastery rate of 84.8% and 75%, respectively. The above description shows the success of previous studies in applying animated video learning media to improve student learning outcomes.

However, previous studies have generally focused on the use of animated videos as a learning medium in general, and there has been no study that specifically examines the use of education through art- based animated videos as a learning medium for IPAS in elementary schools. Therefore, the novelty of this study lies in the ANIMART learning medium based on education through art. ANIMART Learning Media is a learning medium in the form of animated videos that integrate artistic elements (movement, visuals, and expression) as an Education Through Art approach in teaching material about animals to improve the learning outcom Based on the above description, the research questions in this study are: how to design ANIMART learning media based on Education Through Art for the subject of learning about animals, how feasible is ANIMART learning media based on Education Through Art for the subject of learning about animals, and how effective is ANIMART learning media based on Education Through Art on the learning outcomes of students in the subject of learning about animals in the third grade of elementary school?

The objectives of this study are to develop ANIMART learning media based on Education Through Art for learning about animals, to determine the feasibility of ANIMART learning media based on Education Through Art for learning about animals,

and to determine the effectiveness of ANIMART learning media based on Education Through Art on student learning outcomes in learning about animals. es of third grade students.

Method

Development Approach and Model

This research is a research and development (R&D) study using a quantitative approach. This approach was chosen to develop the ANIMART learning media based on Education Through Art and to test its feasibility and effectiveness in improving student learning outcomes in animal recognition. The numerical data obtained were analyzed using descriptive statistics to describe the conditions or results in a specific sample (Kotronoulas et al., 2023). The development model used was the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation.

Research Subjects and Location

The research was conducted in third-grade students of SD Negeri 1 Lamuk, Purbalingga Regency. The research subjects included validator experts (material experts and media experts) and 13 third-grade students. The class was selected using purposive sampling, a sampling technique based on specific considerations because the class was studying material about animals. The student subjects were divided into two trial stages: Small-scale trial: Consisting of 3 students selected based on low and high ability categories; Large-scale trial: Consisting of 10 students.

Data Collection Techniques

Data collection techniques included test and non-test techniques. Test Techniques: In the form of multiple-choice pre-tests and post-tests to measure student learning outcomes; Non-Test Techniques: Included interviews with teachers, documentation, teacher and student needs questionnaires, expert validation (materials and media), and teacher and student response questionnaires.

Data Analysis

Data analysis was conducted in stages to ensure the validity of the research results.

Instrument Validity and Reliability Test

The test instrument was analyzed to obtain accurate data. The validity test used Product Moment correlation with a Sig. value criterion. <0.05, while the reliability test used Cronbach's Alpha with a criterion of α>0.70.

Media Feasibility Analysis

The level of media feasibility was measured based on the percentage of validator scores achieved with the following criteria.

Table 1. Media Validity Criteria

Percentage Score (%)	Eligibility Criteria
86-100	Highly valid
76-85	Valid
60-75	Moderately valid
55-59	Less Valid
< 54	Not valid

Effectiveness Analysis (Learning Outcomes)

Normality Test: Using the Shapiro-Wilk test (because the sample size was <50) to determine data distribution. Data were considered normal if the significance value was ≥0.05 (Ahadi et al., 2023); Paired Sample t-test: Conducted if the data were normally distributed to determine differences in learning outcomes before and after treatment (2-tailed significance <0.05); N-Gain Test: Used to measure improvements in learning outcomes with the following categories:

Table 2. N-Gain criteria

N-Gain (G) Value	Criteria
G≥0.70	High
0.30≤G<0.70	Currently
G<0.30	Low

Result and Discussion

The ANIMART learning media was developed using the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation.

Analysis Stage

In the analysis stage, researchers identified learning needs and problems in grade III at SD Negeri 1 Lamuk, Purbalingga Regency. The analysis was conducted through unstructured interviews with grade III teachers and the distribution of questionnaires on learning media needs. The interview results showed that students' interest and activity in learning Natural and Social Sciences (IPAS), especially in the "Getting to Know Animals" material, were still low. The learning process tended to be teacher-centered, resulting in students being less actively involved. They often became passive listeners and did not dare to ask questions or express their opinions. This condition negatively impacted their level of understanding and learning outcomes. Furthermore, the media used was limited to static pictures, which failed to attract student participation. Based on the needs assessment, teachers suggested

expanding the material to cover a wider variety of species beyond the surrounding environment. Therefore, the material was developed from "What Animals Are Around You?" into "Getting to Know Animals" to provide a more comprehensive scope. These findings concluded that innovative and interactive media like ANIMART (Education Through Art-Based Animated Videos) were necessary to improve students' interest and activity.

Design Stage

In the design stage, researchers created the media concept based on the previous analysis. This stage included designing the lesson plan, storyboard, and validation questionnaires. ANIMART integrates IPAS material with elements of dance (Education Through Art), specifically designed for third-grade students in the concrete operational stage who require realistic visual representations (Hasana Ramdhani et al., 2024). The animals are depicted with movements corresponding to their characteristics, allowing students to not only recognize shapes but also understand locomotion. Researchers also compiled validation questionnaires to assess the suitability of the media before the trial phase.

Development Stage

The development stage is the realization of the design. ANIMART was produced using Canva for background and visual animations, while CapCut was used to combine scenes, edit videos, and add dubbing, background music, and sound effects. The material covers 25 types of animals, grouped into vertebrates and invertebrates. The following table represents the storyboard for the ANIMART media, showcasing three animals as representatives of the overall development pattern.

Tabel 3. ANIMART learning media storyboard

Scene	Visual	Narration	(Dubbing)Audio
Mouse deer	The mouse deer walks along the edge of the forest	The mouse deer walks along the edge of the forest. Its four legs step alternately in rhythm	Background music of nature
Snake	The snake slithers along the ground	The snake slithers using its abdominal muscles and body scales connected to its spine. Its body twists to the right and left even without legs	Background music of nature, sound effects of friction, and creaking
Octopus	The octopus moves in the open sea	In the water, the octopus moves. Its eight arms open and close flexibly	Background music of water sounds

Development Stage

The development stage is the stage of product realization based on the design that has been prepared in the design stage. At this stage, ANIMART learning media is produced into a complete animated video that is ready for validation. ANIMART media is developed using the Canva and CapCut applications. The Canva application is used to design the background and create visual animations of animals in each scene. Next, the CapCut application is used to combine animations in each scene, edit videos, and add audio dubbing, background music, and animal sound effects to create attractive and interactive animated learning videos. In this article, the product presentation is displayed in the form of screenshots as a visual representation of the media. The screenshots shown represent only one of the 25 animals featured in ANIMART media, as each animal is presented with the same structure and pattern, namely motion animation, narration (dubbing), background music, and sound effects tailored to the characteristics of each animal. Thus, one example of the display represents the overall design of the media developed. The results of the ANIMART learning media development are as follows:

Figure 1. ANIMART Cover Display

Figure 2. Opening of Vertebrate Animals

Figure 3. Vertebrate Content Display

Figure 4. Opening Display of Invertebrata

Figure 5. Opening Display of Invertebrata

Figure 6. Invertebrate Content Display

After the ANIMART learning media has been developed or deemed complete in its final form, the product is first reviewed by the supervising lecturer before undergoing a validation process by experts to determine the media's suitability for implementation in learning. Validation is carried out by media experts, art subject matter experts, and IPAS subject matter experts. The summary of the validation results is presented in the following table.

Table 4. Recapitulation of expert validation results

Expert category	Percentage (%)	Qualification
Media expert	92	Highly recommended
Art expert	91	Highly recommended
IPAS expert 1	80	Recommended
IPAS expert 2	88	Highly recommended

Based on the table above, the media expert and art expert provided no suggestions, giving a score of 92.00% and 91.00%, respectively, which categorized the media as highly suitable for testing without revision. Meanwhile, the IPAS subject matter expert initially gave a score of 80.00% (suitable with revision). The suggestions from the IPAS expert included: adding 40 pre-test and post-test questions, dividing the lesson plan into two meetings (vertebrates and invertebrates), adding a cover to the media, adding separate introductions for vertebrate and invertebrate types as stimuli in syntax 1, and adjusting the use of ANIMART media to syntax 3. After these revisions were implemented, the validation score improved to 88.00%, placing it in the highly suitable category. Consequently, the ANIMART learning media was deemed feasible for the testing phase.

Instrument Validity

Next, 40 pre-test and post-test questions were tested on 20 fourth-grade students at SDN 1 Lamuk to

determine their validity before being used in the research class (Grade III). Based on the Product Moment correlation validity test, 24 questions were declared valid. The researcher then selected 20 of these valid questions to be used as the final research instrument.

Implementation Stage

The implementation stage involved applying the Education Through Art-based ANIMART media in the Grade III learning process. This stage was conducted after the media was declared feasible by experts. The implementation was carried out in two stages: small-scale trials and large-scale trials.

Small-Scale Trial

The small-scale trial involved three students selected to observe initial responses and potential improvements. The results showed an increase in scores for all students: The first student improved from 75.00 to 85.00; The second student improved from 95.00 to 100.00; The third student improved from 50.00 to 65.00. The average pre-test score was 73.33, while the average post-test score increased to 83.33. Although the number of subjects was limited, these results indicate a significant potential for improved learning outcomes using ANIMART media.

Large-Scale Trial

The large-scale trial involved 10 students. The pre-test and post-test data from this stage were analyzed using SPSS through the Shapiro-Wilk normality test, paired sample t-test, and N-Gain test to measure the media's effectiveness.

Normality Test

The Shapiro-Wilk normality test was conducted to determine whether the data distribution was normal. The results of the normality test are presented in Table 5.

Table 5. Normality test results using Shapiro-Wilk

Variables	Kolmogorov-Smirnov Statistic	df	Sig.
Pre-test	0.13	10	0.20
Post-test	0.20	0.20	0.20

The normality test results showed a pre-test significance value of 0.57 and a post-test value of 0.06. These results indicate that the data are normally distributed because the significance values are > 0.05. Based on these results, the statistical analysis proceeded using parametric tests. Paired Sample t-Test.mThe paired sample t-test was used to determine the significant difference between the pre-test and post-test scores.

Table 6. Results of the paired sample t-test

Variable	t	df	Two-Sided p
Pre-test - Post-test	-4.39	9	0.002

The results showed a significance value (2-tailed) of 0.002 < 0.05. This indicates a significant difference between the learning outcomes before and after using the ANIMART media, proving that the media has a significant effect on improving student learning outcomes in animal recognition.

N-Gain Test

The N-Gain test aims to measure the effectiveness of the media in improving student learning outcomes.

Table 7. N-Gain test results

N-gain	N	Mean	Std. Deviation
Valid N (listwise)	10	0.5755	0.28998

The analysis shows an average N-Gain score of 0.5755, which falls into the Moderate category. This indicates that the ANIMART learning media is sufficiently effective in improving student learning outcomes.

Evaluation Stage

The evaluation stage was conducted to determine the quality of the ANIMART media in terms of feasibility and effectiveness through formative and summative evaluations. Formative evaluation occurred during the development process through expert validation. Media experts gave a score of 92.00%, art experts 91.00%, and IPAS experts 88.00% (after one revision), all falling within the "Very Feasible" category. Summative evaluation was conducted after implementation to measure practicality and effectiveness. Practicality was measured through teacher and student response questionnaires.

Table 8. Summary of product response survey results

Subject	Percentage (%)	Criteria
Teacher	92	Very practical
Students	99.20	Very practical

Teachers noted that the media was interesting, creative, and well-suited for third-grade students, helping them understand material more easily and enjoyably.

Discussion

The development of ANIMART integrates IPAS material with dance elements through interactive animation (Hidayat et al., 2025). This cross-disciplinary integration provides a richer learning experience, enhancing creativity and motivation (Li & Yu, 2025;

Yunianto et al., 2025). By involving psychomotor aspects, students do not just observe but also imitate movements, which develops motor coordination and imagination. Active involvement makes the learning process more meaningful. When students are engaged, their learning outcomes tend to improve (Dewi & Ary, 2024; Mavri et al., 2024). These learning outcomes are very important because they reflect the success of the learning process in teaching and learning activities. The development of ANIMART media marks a significant innovation in elementary school learning by combining Natural and Social Sciences (IPAS) material with elements of dance through interactive animation (Scott-Barrett et al., 2023). This cross-disciplinary integration goes beyond simply combining two subjects, but creates a synergy that enriches students' learning experiences holistically (Xu & Wu, 2025; Schmidt, 2020).

Enhancing Creativity and Learning Motivation

The combination of the visual aspects of animation with the rhythmic expression of dance has been proven to enhance student creativity and motivation. Compared with conventional methods, which are often theoretical, ANIMART presents IPAS content in a more dynamic format. This sparks students' curiosity and maintains their emotional engagement throughout the learning process.

Developing Psychomotor and Imagination

One of ANIMART's main advantages lies in the active involvement of psychomotor aspects. In this context (Shi et al., 2025): Movement Imitation: Students are not merely passive observers, but are encouraged to imitate the movements shown in the animation; Motor Coordination: This imitation process directly trains students' gross and fine motor coordination; Imagination (Ezell, 2025; Swider-Cios et al., 2023). Through visualization of science concepts combined with dance movements, students are encouraged to use their imagination to understand natural or social phenomena more concretely (Anttila et al., 2019; Konstantinidou, 2025).

Significance for Learning Outcomes

Active involvement is key to creating meaningful learning. When students feel physically and mentally engaged, they don't simply memorize information but construct their own understanding (Amerstorfer & Freiin Von Münster-Kistner, 2021; Rea et al., 2022). Consistent with previous research, this high level of engagement is positively correlated with improved student learning outcomes (De Bruijn-Smolders & Prinsen, 2024; Parmar et al., 2025). Thus, ANIMART serves as an effective bridge between theory and practice, ultimately optimizing academic achievement (Chen et al., 2025; Subandiyah et al., 2025).

Conclusion

The results of research and development of ANIMART learning media on the subject of animal recognition provide answers to several problems that occur in the IPAS learning process. Based on the results of research and development, ANIMART learning media based on Education Through Art on the subject of animal recognition was developed using the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation. ANIMART is a digital learning media in the form of animated videos that integrates IPAS material with dance elements (Education Through Art) through the visualization of concrete animal movements. This media is designed to suit the characteristics of third-grade elementary school students so that it can increase their interest, imagination, and involvement in the learning process. The feasibility of the ANIMART learning media was demonstrated through expert validation results. The validation results from media experts obtained a percentage of 92%, dance experts 91%, and IPAS material experts 88% after one revision, all of which were in the very feasible category. In addition, the results of the teacher and student response questionnaires show that this media is considered very practical, with a percentage of 92% from teachers and 99.20% from students, so that ANIMART media is declared feasible for use in learning. The effectiveness of ANIMART media in improving student learning outcomes is demonstrated through the results of pre-test and post-test data analysis. The results of the paired sample t-test show a significance value of $0.002 < 0.05$, which means that there is a significant difference between learning outcomes before and after using ANIMART media. In addition, the N-Gain test result of 0.5755 is in the moderate category, which shows that ANIMART media is quite effective in improving student learning outcomes in the subject of animal recognition in third grade elementary school.

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Author Contribution
Wrote the introduction A. I. P, methods, results, discussion, and conclusion. D. D. A provided guidance.

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