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Enhancing Motivation and Science Learning Outcomes of Elementary School Students using Animated Video: A Quasi-Experimental Study

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Abstract: IPAS learning, especially the material "My Indonesia is Rich in Culture" in elementary schools, still uses conventional media. The use of this media causes low student motivation, which has an impact on their interest, enthusiasm, and enthusiasm in participating in learning. Unattractive media often makes students bored quickly, so the delivery of material is not optimal. As a result, student learning outcomes are also unsatisfactory. One of the media that can increase students' interest and enthusiasm is animated video. This study aims to analyze and describe the effectiveness of learning media on motivation and learning outcomes in IPAS subjects. This type of research is a quantitative experiment with a quasi experimental design. The design used was nonequivalent control group design, with the population consisting of class IVA (27 students) as the experimental class and class IVB (27 students) as the control class, a total of 54 students. Data were collected through tests to measure learning outcomes and questionnaire sheets to measure learning motivation. Data analysis used Independent Sample t Test to test the difference and effectiveness of animated video media. The results showed that the application of animated video media was more effective than conventional media in learning IPAS material "My Indonesia is Rich in Culture." The average value of student motivation in the experimental class reached 77.85, while in the control class it was only 74.15. For learning outcomes, the experimental class average was 85.96, compared to the control class which was 69.74. From the results of this study, it can be concluded that animated video media is more effective than conventional methods. Therefore, teachers are advised to innovate with more interesting learning media.

Keywords: animated video, motivation, learning outcomes.

▪ INTRODUCTION

Education in general means a process of human life in developing themselves for their survival. Thus, being an educated person is very important. An educated person will be useful for Nusa, the nation, and the State. The father of Indonesian National Education Ki Hajar Dewantara defines that the meaning of Education; "Education is a demand in the life of growing children, as for what it means, education guides all the forces of nature that exist in these children, so that they as humans and as members of society can achieve the highest possible safety and happiness." (Ujud et al., 2023)

The quality of science learning in primary schools is strongly influenced by the methods and approaches used, but at SDN Purwoyoso 03, there is a striking gap between the ideal conditions of interesting and effective learning and the reality faced. Although the goal of education is to create an interactive and enjoyable learning environment, many students still experience difficulties in understanding science concepts, reflecting the need for evaluation and improvement in the existing learning process.

The education process in Indonesia is included in one unit, namely National Education, in accordance with Law No. 20 of 2003 concerning the National Education System. The function and purpose of education according to Law No. 20 of 2003 in Chapter II Article 3 states that "national education functions to shape the character of the nation's children to become a smart nation and aims to develop the potential of students

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to become human beings who are faithful and devoted to God Almighty." With education, humans can develop the potential that exists in themselves in accordance with the objectives of national education(Susilawati, G., & Setiawan, 2019). Education also plays an important role in improving the quality of education, especially in producing quality students. Education is very important for humans to add insight and knowledge in life to improve the welfare of life (Caella & Yulianto, 2024).

Along with the rapid development of the times, and increasingly sophisticated technological advances. Where the world of education must also be in tune with the progress of the times (Sari, 2024). The development of technology in education provides positive benefits to the learning process, one of which is learning media in the field of technology. It can determine the extent to which digital technology can be used to create visual learning and increase student motivation(Hirschfeld, C. G. , E., Rodríguez-Santos, M. Á., & López-Martín, 2025). "Learning media is any object in the form of software or hardware that can be used to convey the content of learning materials to students. Learning is a process of interaction between students and educators, with learning materials, delivery methods, learning strategies, and learning resources in a learning environment"(Putra et al., 2024).

Based on research conducted by Anggrayni from Dharmas University of Indonesia in 2023 with the title "Development of TPACK-Based Animated Video Learning Media in IPAS Class IV SDN O1 Sitiung". The results of the analysis of the questionnaire sheet filled out by the teacher on the animated video learning media were 96.42% of the percentage, from the students' questionnaire at a percentage of 86.77% which was in very practical criteria. The average assessment results from teachers and students are 91.59% with very practical criteria. The results of the effectiveness of animated video learning media obtained from the test scores of students' learning outcomes after learning video animation which has a very effective category with a value of 84.85% percentage included in the very effective category. In addition, based on the results of research from Lavenia Ayu Caella from Semarang State University in 2024 with the title "The Effectiveness of Animated Video Media in Increasing Interest and Learning Outcomes in Science Subjects" shows that the application of animated video media is more effective than conventional media at SD Negeri Klumprit 01 Nusawungu Cilacap Regency. "The results of the analysis of learning interest and learning outcomes showed that the experimental class had a higher average interest score (82.03) compared to the control class (75.88). Meanwhile, the average value of learning outcomes of the experimental class was higher (81.38) than the control class (66.15). It is concluded that the use of animated video media is more effective than conventional media in science and science subjects on the material of Building Civil Society."

One of the strategies implemented to improve the quality of education in Indonesia is to train students in critical thinking skills. However, the facts show that students' critical thinking skills in Indonesia are still far from adequate(Sae & Radia, 2023). This will affect student learning outcomes. In addition, one of the factors that influence the success of student learning at school is motivation. Motivation will have an impact on student learning outcomes, either directly or indirectly. Every student has a goal in his activity, so he will have strong motivation to achieve it. Utilizing all efforts will be made to achieve his learning dreams. This means that someone who does not have motivation in learning,

it will not be possible to carry out learning activities. The solution to overcome this is to use interesting and effective learning media.

Learning media has an important role as a tool to communicate information and messages from sources to students. One of them is computer-based learning media or what is called learning multimedia. Multimedia-based learning systems (technologies that include sound, images, and video) can present subject matter that is more interesting, not monotonous, and facilitate the delivery of material. Media can be defined as a tool to convey messages that can stimulate students' thoughts and feelings so as to generate motivation to learn(Safitri & Titin, 2021). Learning media will make learning material easier and clearer.

Ahmad and Rahmil (2017: 32) state that "video media is one of the media that can describe a moving object along with the appropriate sound." Video is a rich medium for communicating educational material(Li et al., 2016). In line with this, Sanjaya (2006: 172) also states "that audio-visual media is media that contains elements of sound and contains elements of images to be seen." As one of the audiovisual media, videos can be used as learning media in various subjects. (Isti et al., 2022)

Animated video media can simplify the material to be easily understood, attract attention, and when using learning media students will be more focused because of their interest in the media. Students' active and constructive involvement in this learning can benefit their learning outcomes(Kuhlmann et al., 2024). In order for students to pay attention to the learning material provided, the teacher must use or make creative and interesting learning media. If the media used is unique and interesting, then students will become more excited and make them focus on paying attention to the teacher. Animated videos have a positive impact on students' emotional state and motivation(Traulsen & Zander, 2024). Creative learning media must be made in accordance with the characteristics of elementary school students such as: love to learn while playing, love to learn by using interesting media, like to move, like to watch, and like to do things directly (M. Anggrayni et al., 2023). Based on its literal meaning, animation is to animate, which is an attempt to move something that cannot move on its own(Pertiwi et al., 2023).

The involvement of teaching materials in the learning process is needed in order to influence student learning outcomes, and the deeper the teaching materials are perceived by students, the more effective the learning will be. From several points of view on the concept of learning media, it can be interpreted that learning media is a medium or tool used to convey or distribute information so that the recipient of the information can complete the learning process. Media is needed in learning activities because the media can help deliver information(Qifsy et al., 2023).

The aim of IPAS education is to develop knowledge and students' basic skills that are useful for their daily lives. IPAS is learning that consists of science and social studies. Social studies learning is closely related to the preparation of students to play an active role or participate in the development of Indonesia and engage in world society. Social studies should be seen as an important component of the overall education to children. Social studies plays a significant role in directing and guiding students to democratic values and behavior, understand themselves in the context of contemporary life, understand their responsibilities as part of an interdependent global society. In achieving this goal itself, of course, there are many factors in it. Based on the results of observations and interviews conducted by researchers with the fourth grade teacher of SDN Purwoyoso

03, it was found that the learning carried out at SDN Purwoyoso 03 used the Merdeka Curriculum. The learning process at SDN Purwoyoso 03 still uses the lecture method and group discussions, supported by learning media in the form of pictures. Based on the results of interviews, the learning process carried out at SDN Purwoyoso 03 still has several obstacles. Some of the obstacles experienced are the lack of student motivation in participating in learning which results in the ability of students to receive or understand learning material, especially the IPAS subject is not optimal. These obstacles occur due to several factors, namely lack of student learning motivation, supporting learning infrastructure, and support for students, either from parents or themselves. In addition to these factors, the lack of student motivation in participating in learning is also caused by the use of learning media used by teachers as support in delivering learning materials. The learning media used is conventional media, namely pictures, and the use of the lecture method also causes a lack of student motivation in carrying out the learning process, which results in less than optimal student learning outcomes, especially in the IPAS subject.

Based on a survey conducted at SDN Purwoyoso 03, only about 45% of students stated that they felt motivated to learn IPAS. In addition, the end-of-semester exam results showed that the average score of students in science subjects only reached 65, which is below the passing standard. This data shows that both student motivation and learning outcomes in learning IPAS are still low, which is an indicator of problems in the teaching methods applied.

This research focuses on the utilization of animated video media in learning science in elementary schools, especially at SDN Purwoyoso 03, with the aim of improving student motivation and learning outcomes. Through in-depth analysis of existing learning practices, this research is expected to provide real solutions to overcome the challenges faced in science education. This research has several important contributions to the field of education, especially in the context of science learning in elementary schools. First, it introduces the use of animated video media as an innovative teaching method, which can increase students' interest and engagement in learning. Secondly, by analyzing the effectiveness of animated video media, this research provides insights into how technology can be used to improve the quality of learning and student learning outcomes. In addition, the results of this study can provide guidance for teachers in designing and implementing more interactive and engaging learning strategies. This research also focuses on the aspect of student motivation, which is a key factor in successful learning, expected to improve learning outcomes. In addition, the findings from this study can serve as a reference for further research on learning media and various teaching methods in the context of science education at the primary school level. Finally, this research can also encourage collaboration between teachers, parents and communities in supporting a more effective and enjoyable learning process for students. Thus, this research not only provides a situational analysis but also offers practical solutions that can be applied to improve the quality of science education at the primary school level.

Limitations in developing learning media and learning methods have an impact on student motivation in participating in the learning process, which results in less than optimal student learning outcomes. The use of the lecture method causes students to get bored quickly when delivering learning materials which results in reduced student learning motivation, so that sometimes students cannot maximize their understanding of

the material delivered by the teacher. Coupled with the use of learning methods that are less varied, because they only use lecture methods and group discussions. So that it has an unfavorable impact on student motivation and learning outcomes. Researchers intend to conduct research in class IV SDN Purwoyoso 03 due to the lack of use of IT-based learning media in IPAS subjects, especially in the social studies section by teachers. This makes the motivation and learning outcomes of the students' IPAS subjects lacking. This research has not previously been conducted at SDN Purwoyoso 03. Based on the background of the problem which shows that the lack of use of varied learning media, as well as the low learning motivation of students, and not maximizing student learning outcomes in IPAS subjects, the researchers are interested in proving "does the use of animated video media significantly increase the motivation and learning outcomes of IPAS fourth grade students of SDN Purwoyoso 03 compared to conventional learning?"

▪ METHOD

Participants

This research was conducted at SDN Purwoyoso 03 Semarang City. The research was conducted in the even semester of the 2024/2025 school year. The population of this study were fourth grade students of SDN Purwoyoso 03. The samples in this study were class IV A as an experimental class totaling 27 students, and class IV B as a control class totaling 27 students. With the consideration that the samples used as control classes and experimental classes are both at the same level of education and receive the same learning material. This sampling technique uses Nonprobability sampling technique. According to Sugiyono, "Nonprobability sampling is a sampling technique that does not provide equal opportunities for each element or member of the population to be selected as a sample"(Sugiyono, 2016). Thoifah (2015: 16) states "If the research population is less than 100, all members of the population should be sampled". So that the sampling technique in the study used a saturated sampling technique. Saturated sampling is a sampling technique that involves all members of the population as samples. Sugiyono (2017: 126) explains that "saturated sampling is a sampling technique when all members of the population are used as samples". So, the sample in this study were all IVA class students totaling 27 students as the experimental class and class IVB totaling 27 students as the control class from SDN Purwoyoso 03.

Research Design and Procedure

This research uses quantitative research methods. The research design used in this study is a quasi experimental design. In quasi-experimental researchers provide experimental and control treatment to intact groups, administer pretests to two groups, conduct experimental treatment activities only with the experimental group, and after that administer post-tests to access differences between the two groups (Sugiyono, 2016).

According to Sugiyono (2017: 116) "This design has a control group, but cannot function fully to control external variables that affect the implementation of the experiment". Quasi experimental design has two forms of design, namely Time series design and Nonequivalent control group design. (Sugiyono, 2019) In this study, the form of design used is the Nonequivalent Control Group Design form, which means that in this study there are two groups selected not randomly but selected homogeneous groups, then a pretest is carried out at the beginning before the study and a posttest at the end of the study.

In this study there was an experimental group (A), namely class 4A SDN Purwoyoso 03 and a control group (B), namely class 4B SDN Purwoyoso 03. At the beginning of the study before being given treatment, the experimental class and control class conducted a pretest to determine the initial ability of students and filling out a learning motivation questionnaire. The pretest was conducted for 30 minutes with 30 multiple choice questions and 20 minutes of filling out the learning motivation questionnaire. Furthermore, the treatment was given, namely in the experimental class learning was carried out using animated video media on the material of Indonesia's Rich Culture and in the control class learning was carried out using image media as usual teachers apply in learning (conventional). The animated video contains moving images and explanations that are easy to understand so that it can increase students' interest in paying attention to it. Learning activities are carried out for two meetings or four hours of learning with a duration of 70 minutes for each meeting. At the end after being given treatment in the experimental class and control class, a posttest was conducted to determine differences in learning outcomes and filling out a learning motivation questionnaire to determine differences in student learning motivation. The time used for the posttest is the same as the pretest time. Furthermore, the results of the posttest and questionnaire from the experimental class and control class were compared to find out if there was a difference between the two.

The flow of research conducted by the research is as follows: (1) Interview with the class teacher, (2) Test questions, (3) Pretest related to learning motivation and cognitive abilities of students, (4) Learning activities using animated video media, (5) Postest related to learning motivation and cognitive abilities of students after treatment, (6) Analysis of data obtained.

Instrument

The instruments used were interview guidelines, teaching modules, instrument trials, learning motivation instruments and pretest and posttest question instruments. Interviews were conducted with class teachers in this study using unstructured interviews. Interviews were conducted as an initial needs analysis and to find out the characteristics, learning models, and abilities of students. Teaching modules were made before researchers conducted their research. The teaching module is used as a guide in carrying out learning in the classroom. Teaching modules are made with reference to the IPAS Class IV Semester 2 Chapter 6 Topic B with the material Indonesiaku Kaya Budaya. This study has four teaching modules, namely teaching modules used for experimental classes and teaching modules used for control classes. Instrument trials are useful for knowing the validity, reliability, difficulty level and differentiation of questions. The instrument trial was carried out in class IV SDN Purwoyoso 03, with 50 respondents. The instrument trial consisted of 50 multiple choice items and 40 objective items with 4 alternative answers. Instrument trials are useful for knowing validity and reliability. After the questions are tested, questions will be obtained that can be used to carry out data collection of learning outcomes and learning motivation questionnaires. After the questions are tested, questions will be obtained that can be used to carry out the pretest and posttest. The learning motivation questionnaire consists of 25 statements which are used as the starting point of the instrument. Student pretest and posttest questions consisted of 30 multiple choice questions to obtain data on student learning outcomes before and after treatment.

The validity and reliability tests of the instrument were carried out before the instrument was used in this study. The test instrument was tested on 50 students with the material Indonesiaku Kaya Budaya. How to find out the validity of the question instrument used in this study, the researcher tested the questions on grade IV students of SDN Purwoyoso 03. Furthermore, the researcher collected data on the results of the instrument trial and analyzed it by correlating between item scores using the Cronbach's Alpha formula, the results of which are seen in the table. The provisions for making validity test decisions are by using the rtable limit with a significance of 0.05 and a two-sided test. If the correlation value is more than the specified limit (rcount ≥ rtable) then the instrument is declared valid. If the correlation value is less than the specified limit (rcount < rtable) then the instrument is declared invalid(Priyatno, 2016). The validity test is used to determine whether the instrument used is valid, that is, the instrument can be used to measure what is actually measured. Meanwhile, an instrument is said to be reliable if the reliability coefficient is above 0.6 Sugiyono (2017: 184). The limit of the reliability value according to Sekaran (1992) in Kurniawan (2021), "namely reliability of less than 0.6 is not good, while 0.7 is acceptable, and above 0.8 is good"(Kurniawan & A'la, 2021).

Data Analysis Techniques

Data analysis techniques in the pre-research stage consisting of validity tests, reliability tests, difficulty levels, and differential power to calculate the results of instrument trials conducted in class IV SDN Purwoyoso 03. Researchers collected data on the results of instrument trials and analyzed them by correlating between item scores using the Cronbach's Alpha formula whose results are seen in the table. The provisions for making validity test decisions are by using the rtable limit with a significance of 0.05 and a two-sided test. If the correlation value is more than the specified limit (rcount ≥ rtable) then the instrument is declared valid. If the correlation value is less than the specified limit (rcount < rtable) then the instrument is declared invalid.

Furthermore, the data analysis technique uses a prerequisite analysis test consisting of normality and homogeneity tests. Priyatno explains that "the normality test is calculated through the Liliefors test by looking at the significance value in the Kolmogorov Smirnov column", namely: H0 (data is normally distributed) and H1 (data is not normally distributed). The Liliefors test calculation was carried out with the help of the SPSS version 25 program through the Analyze - Descriptive Statistics - Explore menu. Normality test decision making is taken at the 5% significance level. Data is declared normally distributed if the significance value is greater than 0.05. The homogeneity test is used to determine whether some variants of the data population are the same or not. According to Priyatno explained that "before the t test is carried out, a homogeneity test must be carried out with Levene's test". Statistics used to test the homogeneity of variance using the variance test method. The menu used to determine homogeneity is analyze - compare means -independent sample t test. If the significance value is > 0.05, it can be said that the results are homogeneous.(Priayanto, 2020)

Researchers used the independent sample t-test. Independent sample t test is a test using the t distribution of the significance of differences in certain mean values of two groups of unpaired samples. To find out whether H0 is accepted or rejected, namely by comparing the tcount value with the ttable. H0 is accepted if ttabel ≤ tcount ≤ ttable. While H0 is rejected if tcount < ttable or tcount > ttable. Decision making can also be seen from the significance value. If the significance value is > 0.05, then H0 is accepted, while if

the significance value is ≤ 0.05, then H0 is rejected. Furthermore, Normalized Gain or N-Gain score aims to determine the effectiveness of using a particular treatment in a study. The N Gain Score test is carried out by calculating the difference between the pretest value (test before treatment) and the posttest value (test after treatment). By calculating the difference between the pretest and posttest scores or the gain score, we can find out whether the application of the treatment (treatment) can be said to be effective or not. The purpose of the n-gain test is to determine the increase in the value of the experimental class and control class based on the gain index. The categorization of the acquisition of the N-Gain Score can be determined based on the N-Gain value or from the N-Gain value in the form of percent (%). N-Gain value > 0.7 is a high category, if 0.3 > N-gain > 0.7 is a medium category, and N-gain < 0.3 is a low category. Meanwhile, the division of the N-Gain category in the form of percent (%) can refer to if the N-gain < 40 then it is not effective, 40 - 55 is less effective, 56 - 75 is quite effective, and N-gain > 75 is effective.

▪ RESULT AND DISSCUSSION

This study aims to test the effectiveness of animated video media on the motivation and learning outcomes of IPAS class IV students of SDN Purwoyoso 03. After the researchers conducted the research and obtained the data, then the data were processed to answer the hypothesis in this study. Before the research was carried out, the researcher had carried out an instrument trial first. Instrument trials aim to test the instruments to be used in research. Instrument trials include validity tests, reliability tests, question difficulty tests, and differentiation tests. After carrying out the trial, a research instrument was obtained that met the requirements determined for use in research. The research instruments in this study consisted of 25 items of learning motivation questionnaire with four answer choices and 30 multiple choice questions with four alternative answers. The instrument was then used to carry out trials in the study. After obtaining an instrument that has been tested, the researcher conducts research and the results of the research are processed and analyzed so that they can be described to make it easier to understand.

The data obtained in this study are data on student learning motivation and student learning outcomes. “Motivation is a feeling of preference and attachment to a thing or activity, without anyone telling you to. Motivation is basically the acceptance of a relationship between oneself and something outside oneself. The stronger or closer the relationship, the greater the motivation.” Yolviansyah et al. (2021) state that motivation is a desire that encourages individuals to achieve goals in an optimal way, supported by feelings of pleasure and interest, so that individuals try harder to achieve the desired results. Learning motivation includes deep attention, interest, and positive emotional experiences towards certain materials or topics. Students who have learning motivation tend to be more motivated and enthusiastic in the learning process. Kartika et al. (2019) added that motivation is a stable tendency in students' attention and involvement in overall learning activities, which shows the importance of meaningful learning. Hasanati (2021) also argue that learning motivation reflects a person's full involvement in a preferred field of study, and enjoys the process of learning material to gain new knowledge, attitudes and skills. Motivation in learning encourages individuals to take on challenges, explore topics in depth, and continuously improve their knowledge and skills.

In a lesson, the use of learning media to convey learning material greatly affects student learning motivation. The use of learning media that can attract student motivation

can certainly increase student learning motivation. In IPAS learning in class IV SDN Purwoyoso 03 material My Indonesia is Rich in Culture, the motivation used is the use of learning media. The use of learning media that can increase student learning motivation will have a positive impact on the achievement of the learning process. In this study, the use of learning media is divided into 2, namely the use of animated video media in the experimental class and the use of image learning media in the control class. Student activity in following the learning process shows the existence of student learning motivation in the learning process. Student activity in each class obtained an average percentage of 82.03% in the experimental class and 70.88% in the control class. This can be seen during the learning process, in the experimental class students can be said to be very active in participating in the learning process.

Table 1. Data on motivational and learning outcomes

It	Criterion Data	Learning Motivation		Learning Outcomes	
		Control	Eksperimen	Control	Eksperimen
1.	Number of Students	27	27	27	27
2.	Total value	2002	2102	1883	2321
3.	Average Niai	74.14	77.85	69.74	85.96
4.	Highest Scores	88	88	90	96
5.	Lowest Rate	60	70	56	66
6.	Median	75	78	86	70

Based on the data of the average value of filling out the questionnaire of learning motivation of experimental and control classes, hypothesis testing is then carried out. The analysis prerequisite test includes normality test and data homogeneity test. Normality test is used to determine whether the data is normally distributed or not normally distributed. Data is declared normal if the data has a significance value> 0.05, if the data has a significance value <0.05 then the data is declared not normally distributed. For this normality test, researchers used the Shapiro-Wilk test because there were less than 100 respondents. The homogeneity test is used to test whether the two sample groups in this study have different variants or have the same variant. The criterion in testing homogeneity is if the significance value is> 0.05, it can be concluded that the variance in the data is declared homogeneous. However, if the significance value is <0.05 then it can be concluded that the data is not homogeneous. Based on the prerequisite test analysis that has been carried out, it is known that the data on student learning motivation is normally distributed and homogeneous. Therefore, the difference hypothesis test uses the independent sample t test.

The t-value, degrees of freedom (df), and significance value (p-value) are important components in statistical analysis used to test hypotheses. The t-value indicates how large the difference between the means of two groups is compared to the variation in the data; the higher the t-value, the more significant the difference. The degrees of freedom (df) are calculated based on the sample size and used to determine the appropriate t distribution. The p-value measures the probability of getting the same or more extreme result if the null hypothesis is true; $p < 0.05$ indicates that the difference between the experimental and control groups is statistically significant. If $p < 0.05$, this means that the animated video media effectively improved students' motivation and learning outcomes,

providing empirical evidence for integrating technology in education in primary schools. (Priyatno, 2024).

The first hypothesis testing is about the difference test. Statistical analysis of the first hypothesis testing, the difference in student learning motivation is Ha (There is a difference in learning motivation of grade IV students of SDN Purwoyoso 03 between learning using animated video media and learning using conventional media). Ho (There is no difference in learning motivation of grade IV students of SDN Purwoyoso 03 between learning using animated video media and learning using conventional media.

Table 2

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.060	.808	2.126	52	.038	3.70370	1.74223	.20767	7.19973
Equal variances not assumed			2.126	51.723	.038	3.70370	1.74223	.20723	7.20018

Based on the results of hypothesis testing on the value of student learning motivation, the Sig. (2-tailed) shows a value of 0.038 which means <0.05. Because the value of Sig. (2 tailed) < 0.05, then Ho is rejected and Ha is accepted. This shows that there is a difference in the learning motivation of fourth grade students of SDN Purwoyoso 03 between learning using animated video media and learning using image media.

A test is a tool or procedure used to measure or find out something in a certain situation, with predetermined methods and rules. In this study, the test consisted of 30 multiple choice questions, with four answer choices. The questions were designed to measure students' cognitive learning outcomes in the C4, C5, and C6 domains. The posttest results showed a difference in the average learning outcomes between the experimental and control classes. The experimental class, which used animated video learning media, obtained an average score of 85.96, while the control class, which used conventional learning media, obtained an average score of 66.74. Thus, the experimental class showed a higher score than the control class.

The second hypothesis testing is about the difference test. Statistical analysis of testing the second hypothesis, the difference in student learning motivation is Ha (There is a difference in the learning outcomes of grade IV students of SDN Purwoyoso 03 between learning using animated video media and learning using conventional media). Ho (There is no difference in the learning outcomes of grade IV students of SDN Purwoyoso 03 between learning using animated video media and learning using conventional media).

Table 3. Test of student learning outcomes

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	3.502	.067	6.391	52	.000	13.11111	2.05154	8.99439	17.22783
Equal variances not assumed			6.391	47.185	.000	13.11111	2.05154	8.98437	17.23785

Based on the calculation table using SPSS version 25 above, it can be seen that the Sig value. (2-tailed) shows a value of 0.000 which means <0.05. Because this Sig value. (2-tailed) <0.05, then Ho is rejected and Ha is accepted. This shows that there is a difference in learning motivation of fourth grade students of SDN Purwoyoso 03 between learning using animated video media and learning using conventional media.

Based on Andri's (2020) opinion regarding decision-making criteria for hypothesis testing, "it can be concluded that there are differences in learning outcomes in IPAS subjects about Indonesiaku Kaya Budaya in class IV SDN Purwoyoso 03 between learning using animated video media and learning using image media." From the learning that has been carried out in the study, data is obtained in the form of differences in motivation and learning outcomes in experimental and control classes. Differences in student learning outcomes between experimental and control classes occur due to differences in treatment between classes, namely the use of animated video learning media with conventional learning media in the learning process. The difference between the experimental class and the control class is also influenced by learning motivation. (Adri et al., 2020) The learning motivation of students who apply animated video learning media is very high, so the learning process is more effective.

According to Hamzah (2011: 23) in Riadi (2022) "learning motivation is an internal and external encouragement on students who are learning to have behavior, generally with several indicators or elements that support. These indicators, among others: the desire and desire to succeed, encouragement and needs in learning, future hopes and ideals, appreciation in learning, and a conducive learning environment"(Muchlisin, 2022). The use of animated videos is more attractive to students so that students will pay more attention because the images presented are very interactive and they will better understand what is presented in the video. Student activeness in following the learning process which shows student learning motivation in the learning process will show that they are enthusiastic about exploring something broader. Student activeness can be seen through students' enthusiasm in paying attention to the delivery of material provided by the teacher using animated video media. In addition to students' enthusiasm in paying attention to the delivery of material, students also actively ask questions and explore the material being discussed in learning.

In the experimental class, students showed a higher level of activeness and enthusiasm during learning. The learning process was dominated by students' exploration of the material, with the teacher acting as a trigger through questions and providing reinforcement. Students were more involved in exploration(Keiler, 2018). In addition, the

use of animated video media makes students more interested and focused on the delivery of the material. During this process, students seemed to sit quietly and pay attention without looking bored, showing high enthusiasm. In contrast, in the control class, the learning media used was conventional, only in the form of pictures and handbooks. Learning was dominated by the teacher delivering the material, while students were asked to explore, but their motivation was very low. When the material was presented with pictures in the book, students looked bored, and many did not pay attention.

When students were asked to explore the material through questions from the teacher, they seemed confused and less motivated. Many students had difficulty understanding the material being taught, and when given questions, they looked confused. As a result, the teacher had to re-explain material that the students could not explore. Because the information they receive comes more from the teacher than from independent exploration, students lack understanding of the material, and their memories of the lesson are not as memorable or meaningful.

Next, to test the effectiveness of animated video media in increasing the learning motivation of grade IV students in IPAS Indonesiaku Kaya Budaya subjects, researchers conducted statistical analysis. Hypothesis testing was carried out using a one-sample t test (right-hand test) on the average value of student learning motivation. Before conducting the right-hand test, the prerequisite test of analysis was conducted first. The prerequisite test results showed that the data on student learning motivation scores in both classes had a normal and homogeneous distribution.

Table 4. Results of the N-Gain test of student learning motivation data

Class	Average		Average N-Gain	Criterion
	Pretest	***Posttest***		
Control	60	74.15	0.28	Low
Eksperimen	59.51	77.85	0.42	Keep

Based on hypothesis testing using the N-Gain Test, the average value of N-Gain in the experimental class was 0.42, which was included in the medium category, while the average value of N-Gain in the control class was 0.28, which was classified as low. Thus, the average N-Gain value of the experimental class (0.42) was higher than the control class (0.28). This shows that the application of animated video media is more effective than conventional learning media in increasing the learning motivation of grade IV students at SDN Purwoyoso 03.

The effectiveness of learning is also influenced by the teacher's skills in managing learning components in accordance with the objectives to be achieved. The observation results showed that the posttest score of students using animated video learning media reached an average of 85.96. Learning outcomes are an important aspect of learning. Learning outcomes are student achievements after taking part in learning within a certain time(Zhang & Ma, 2023). Learning outcomes also reflect the effort made by students, the better the learning effort, the better the results achieved.

Based on the results of the prerequisite test analysis, it is known that the data of the learning outcomes of both classes are normally distributed and homogeneous. Therefore, statistical effectiveness tests can be carried out. Based on hypothesis testing using the N-Gain Test results above, it can be seen that the average value of N-Gain in the

Table 5. Results of the N-Gain test on student learning outcomes

Class	Average		Average N-Gain	Criterion
	Pretest	*Posttest*		
Control	41,67	69,74	0,47	Keep
Eksperimen	45	85,96	0,72	Tall

experimental class is 0.72 which is included in the high category and the average value of N-Gain in the control class is 0.47 which is included in the medium category. It is known that the average N-Gain of the experimental class (0.72) is greater than the average N-Gain of the control class (0.47). So, it can be concluded that the application of animated video media is more effective than the application of conventional learning media seen from the learning outcomes of grade IV students at SDN Purwoyoso 03.

The findings of this study indicate that the use of animated video media can significantly improve the quality of science learning in primary schools. Teachers can utilize this media by integrating it in lesson plans, conducting discussions after viewing, and providing creative assignments. It is important for teachers to receive specialized training covering video-making techniques, selection of relevant content and effective learning strategies. In selecting or developing animated videos, teachers should consider the relevance of the material, student characteristics, credible sources and appropriateness of duration. Practical recommendations for teachers include combining videos with other learning methods, conducting effectiveness evaluations, sharing resources with fellow teachers, and developing content collaboratively. By implementing these steps, teachers at SDN Purwoyoso 03 can create a more interesting and rewarding learning experience for students, thus improving their motivation and learning outcomes in science learning.

Based on the results of this study, it can be concluded that statistically the learning outcomes of students in the experimental class are higher than the control class, which means that the learning process using animated video learning media is declared very effective because there is a very significant difference in learning outcomes between the experimental class and the control class, so it can be generalized to a larger population. However, this study still has some limitations, including the small sample size, short duration of the study, and lack of control over confounding variables, which may affect the validity of the results. For future research, it is recommended that researchers use a larger sample size, extend the duration of the study, and control confounding variables by designing more rigorous experiments. In addition, exploration of variations in media types and learning methods as well as qualitative studies on students' experiences can help deepen the understanding of the effectiveness of animated video media in science learning, thus contributing more to educational practices in primary schools.

▪ CONCLUSION

Learning Mapel IPAS Indonesiaku Rich Culture Material using animated video learning media for grade IV students at SDN Purwoyoso 03 is very effective in use. By using animated video media, students in participating in teaching and learning activities look more active and enthusiastic, this is because animated video media is more interesting compared to image media. This can be clearly known through the results of the t-test and the n-gain test. Where in the experimental class there were higher learning

outcomes and motivation values compared to the control class. Thus, the use of animated video media significantly increases the motivation and learning outcomes of social science students in grade IV of SDN Purwoyoso 03 compared to conventional learning.

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