



## Influence of Multimedia Creative Teaching in Science Subjects on Student Motivation

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### Abstract

The use of interactive multimedia is a technological aid in learning that supports the activities of studying in class, especially in improving academic grades. The use of various appropriate media can increase student motivation when learning. The purpose of this study was to determine whether or not the effect of creative teaching multimedia on IPAS subjects on the motivation of fourth grade students of SDIP YLPI Pekanbaru. The type of research used is *quasi experiment* (quasi-experiment research or pseudo-experiment) with *non-equivalent* group control design. The population in this research is all fourth grade students at SDIP YLPI Pekanbaru which amounted to 44 students with a sample of the entire fourth grade taken using the totaling sampling technique. Data collection techniques in this study used observation, questionnaires, and documentation. Data analysis method applied in this research is descriptive statistical analysis and inferential statistical analysis. Based on the results of the study, it can be concluded that the Sig. (2-tailed) value of  $<0.001 < 0.05$ , it can be concluded that there is an effect of creative teaching multimedia in IPAS subjects on the motivation of fourth grade students of SDIP YLPI Pekanbaru.

**Keywords:** IPAS, Motivation, Creative Teaching Multimedia.

### Abstrak

Pemanfaatan multimedia interaktif menjadi bantuan teknologi didalam belajar yang mendukung kegiatan menuntut ilmu dikelas, apalagi dalam meningkatkan nilai akademik. Digunakannya media yang tepat guna beragam bisa meningkatkan motivasi siswa ketika belajar. Tujuan penelitian ini adalah guna mengetahui ada atau tidaknya pengaruh multimedia ajar kreatif pada mata pelajaran IPAS terhadap motivasi siswa kelas IV SDIP YLPI Pekanbaru. Jenis penelitian yang digunakan adalah *quasi experiment* (penelitian kuasi-eksperimen atau eksperimen semu) dengan desain kontrol kelompok *non-ekuivalen*. Populasi pada riset disini ialah seluruh murid kelas IV di SDIP YLPI Pekanbaru yang berjumlah 44 siswa dengan sampel berjumlah keseluruhan kelas IV yang diambil menggunakan teknik totaling sampling. Teknik pengumpulan data dalam penelitian ini menggunakan observasi, angket, dan dokumentasi. Metode analisis data yang diterapkan dalam penelitian ini adalah analisis statistik deskriptif dan analisis statistik inferensial. Berdasarkan hasil penelitian, dapat disimpulkan bahwa diperoleh nilai Sig. (2-tailed) sebesar  $<0.001 < 0.05$ , maka dapat disimpulkan bahwa terdapat pengaruh multimedia ajar kreatif pada mata pelajaran IPAS terhadap motivasi siswa kelas IV SDIP YLPI Pekanbaru.

**Kata kunci:** IPAS, Motivasi, Multimedia Ajar Kreatif

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## INTRODUCTION

Education is an essential need for every individual in their lives. Education plays an important role in improving human quality by developing cognitive, affective, and psychomotor abilities. Education can also be considered as a creative and driving process. In this context, teachers must have a deep mastery of educational knowledge as well as the ability to manage the teaching and learning process effectively. As an art, every teacher has a unique approach in carrying out their duties (Ariyanti, 2016)

Learning media is a combination of text, images, graphics, audio, and video accompanied by links and navigation tools to support the learning process. The term usually refers to all educational software where it is opened from a device where students can communicate with it. However, further enhancements are required for media to be effective in learning. Media has three virtues in education, such as attracting attention, presenting material, and training. The use of multimedia in learning can make students' learning time more efficient. With the development of learning multimedia, it is expected that students will be more encouraged to seek knowledge, increase curiosity, learn on their own, as well as align with the positive uniqueness expected of students.

The use of interactive multimedia as a technological aid in learning supports the activities of studying in class, especially in improving academics. The use of various appropriate media can improve students' mood when learning. Referring to this, interactive media is properly applied in learning to improve student academics, during learning or in the end (Andreani & Gunansyah, 2023) . According to (Dewanto et al., 2021) , Interactive multimedia is media that provides interactive learning in the form of 3D, sound, graphics, video, animation and creates interaction. In general, the benefits of learning multimedia that can be obtained are that the learning process is more interesting, more interactive, the amount of teaching time can be reduced, the quality of student learning can be improved and the teaching and learning process can be done anywhere and anytime, and student learning attitudes can be improved (Sari & Miaz, 2019)

However, the dominance of teachers in knowledge is something where it is fundamental that they can encourage students to handle certain places. Teachers who dominate their knowledge are guaranteed to be able to give good things to their students (Dirgantoro, 2018; Ermawati et al., 2022) . Whether in formal or non-formal education, educators have a strategy in providing learning to their students. At the formal education level in elementary school, teachers must have the ability to apply teaching methods. Teaching is an activity where the teacher carries out a special function so that students can learn to get the specified learning objectives.

Natural and Social Sciences (NSP) is a discipline that focuses on understanding the living and non-living things in the universe, as well as the interactions between them. It also involves the study of individual human lives as social beings, incorporating a range of other knowledge organized in a logical and structured manner, including cause and effect analysis. Primary school students when studying the environment around them, they can see and experience natural and social events as a unity in general, and students begin to be trained by getting used to observing or observing, exploring, and which becomes an important foundation before students learn about concepts and topics that are more in-depth in science and social studies subjects that they will study in junior high school (Alfatonah et al., 2023) .

The innovation technique in IPAS learning is to break down one learning topic into two views. It requires students to consistently switch between science and social studies or better. IPAS content is very close to nature and human interaction. IPAS learning needs to present a context that is relevant to the natural conditions and the environment around students (Nalinda et al., 2023; Septiana & Winangun, 2023) . Students are asked to observe learning from one view according to concrete circumstances and immediately connected to the other side. This view makes students more critical in thinking related to the material provided by the teacher (Meylovia & Julianto, 2023) . Science Natural and Social Sciences (IPAS) is a

combination of natural and social sciences. Scientific learning is a context related to nature and social conditions (Fadlilah & Purbasari, 2024).

Motivation is one of the most important things to improve creative thinking skills. With the motivation that a student has, it will make students more eager to find ideas or ideas when they face a problem. Someone who has motivation, curiosity is very high so that makes that person have good creative thinking skills. Motivation as one of the factors to improve students' creative thinking skills to be better (Anditiasari et al., 2021).

## RESEARCH METHODS

The type of research used is quast exsperiment (quasi-experiment research or pseudo-experiment) with non-equivalent group control design. The research design here was chosen because it aims to determine the effect of creative teaching multimedia in IPAS subjects on the motivation of fourth grade students of SDIP YLPI Pekanbaru. The population in this research is all fourth grade students at SDIP YLPI Pekanbaru, totaling 44 students. Where IVA which amounted to 21 became the control class and IVB 23 experimental class. The sample in this research is the whole of the research population which amounted to 44 students of class IV SDIP YLPI Pekanbaru. Research here uses several data collection methods to obtain clearer and more accurate information. The following techniques and instruments that researchers use in research are observation, questionnaires and documentation.

Before distributing the research questionnaire, researchers conducted validity and reliability trials first with VA class students at SDIP YLPI Pekanbaru totaling 20 students. After all the questionnaire items are declared valid and reliable, then the researcher will use the questionnaire to carry out research in class IV.

The data analysis technique in this study used descriptive statistical analysis including maximum and minimum values, range, mean, median, mode, variance, standard deviation, histogram, and frequency distribution table. Descriptive statistical analysis in this study was carried out using SPSS software version 25. In addition, inferential statistical analysis was also carried out using the analysis requirements test with normality and homogeneity tests and Hypothesis Tests In this study, hypothesis testing was carried out using the independent samples test test by utilizing SPSS software version 25. Where, if the Significance value (Sig) > 0.05, then the alternative hypothesis (Ha) is rejected and the null hypothesis (Ho) is accepted. Conversely, if the Sig value is <0.05, then Ha is accepted and Ho is rejected.

## RESULTS AND DISCUSION

### Descriptive Statistical Analysis

Based on observations of the implementation of teacher activities and student activities during the learning process in experimental classes using creative teaching multimedia and control classes using conventional models. The results of the pretest and posttest show that the average score in the experimental class is higher than the control class, the average posttest score in the experimental class is 86.78 while the average in the control class is 72.76. The results of the pretest and posttest that have been carried out in both classes, so that the descriptive analysis obtained the following data:

**Table 1. Recapitulation of Descriptive Analysis Results**

Class	N	Minimum	Maximum	Mean	Std. Deviation
Control Pretest	21	53	59	56.29	1.648
Control Posttest	21	68	78	72.76	2.578
Experiment Pretest	23	58	68	63.04	2.722
Experiment Posttest	23	82	92	86.78	2.779

Based on table 1. above, this shows that the increase in motivation of experimental class students is better when compared to the control class. In other words, there is an effect of creative teaching multimedia on student motivation in the teaching and learning process of fourth grade students of SDIP YLPI Pekanbaru.

**Table 2. Frequency Distribution of Posttest Values in Experimental and Control Classes**

Interval	F	Fk	Fr	
53	57	16	16	18%
58	62	14	30	16%
63	67	13	43	15%
68	72	10	53	11%
73	77	11	64	13%
78	82	1	65	1%
83	87	11	76	13%
88	92	12	88	14%
<b>Total</b>	<b>88</b>		<b>100%</b>	

The table above is a significant table of frequency distribution of experimental and control classes from the lowest value to the highest value. In the results of the posttest scores of the experimental and control classes experienced an increase, with the lowest score of 58 and the highest score of 92 in the experimental class while in the control class the lowest score was 53 and the highest score was 78.

### Inferential Statistical Analysis

#### Normality Test

After obtaining the required data, the next process is to look for a normality test on each research variable. The normality test is used to obtain the level of normality of the data used, whether normally or abnormally distributed. By using the *Shapiro Wilk* test in the data normality test with the help of the SPSS 29 program. The results of the normality test are as follows:

**Table 3. Test Results**

Class	Sig (p)	Information
Control	0.333 > 0.05	Data is normally distributed
Experiment	0.131 > 0.05	Data is normally distributed

From the table above, it shows that the significance value in the control class has a sig. of 0.333, while for the experimental class shows sig. 0.131. This shows that both classes have a sig. > 0.05, which means that the data from the control class and experimental class are normally distributed.

#### Homogeneity Test

Homogeneity test is conducted to determine whether the samples come from the same variance or not. To test homogeneity, the Levene Statistic test was used with a significance level of 0.05. The homogeneity test criteria used are if the Sig value. (p-value) <  $\alpha$  ( $\alpha = 0.05$ ), then  $H_a$  is rejected while for other conditions  $H_o$  is accepted, and vice versa. The summary results of the homogeneity test are presented in the following table.

**Table 4. Homogeneity Results of Control & Experiment Classes**

Class		Levene Statistic	df1	df2	Sig.
Control and experimental classes	Based on Mean	.013	1	42	.911
	Based on Median	.004	1	42	.947
	Based on Median and with adjusted df	.004	1	38.512	.947
	Based on trimmed mean	.012	1	42	.913

Based on table 4. above, it is known that if the value (sig.)  $> 0.05$  then  $H_a$  is accepted, meaning that the data comes from a homogeneous population and if the value (sig.)  $< 0.05$  then  $H_0$  is rejected, meaning that the data comes from an inhomogeneous distribution. From the data above, it can be seen in the column based on mean which states that sig is  $0.911 > 0.05$ . This indicates that the data is from a homogeneous distribution.

### Hypothesis Test

The independent sample t test in this study was used to answer the formulation of the problem "is there an effect of creative teaching multimedia on the motivation of grade IV students". To answer the formulation of the problem, the independent sample t test was conducted on the Post-test data of the experimental class (creative teaching multimedia) with the Post-test data of the control class (Conventional model). The following are the results of data processing from SPSS version 29 that researchers use.

**Table 5. Independent Sample T-Test Results**

Posttest Results	F	Sig.	T	df	Sig (2-tailed)	Mean	Std Error	Lower	Upper
Variances Assumed	0.752	0.390	-	48	$<0.001$	-19.978	2.290	-	-15.372
Variances Not Assumed	-	-	-	45.116	$<0.001$	-19.978	2.307	-	-15.372
			8.722					24.583	
			8.661					24.623	

Based on the output above, the Sig. (2-tailed) of  $<0.001 < 0.05$ , it can be concluded that there is an effect of creative teaching multimedia in IPAS subjects on the motivation of fourth grade students of SDIP YLPI Pekanbaru. It can also be seen that there is an average or mean value on the control class posttest of 72.76 and in the experimental class of 87.65. This value can be interpreted that the experimental class average is higher when compared to the control class average. From this exposure, it can be concluded that  $H_a$  is accepted and  $H_0$  is rejected.

## DISCUSSION

It is very important for students to master the material in the science subject itself. Thus, the success of students learning science is inseparable from the process of learning science in elementary schools. Learning is a complex process that occurs in everyone throughout his life. The learning process occurs because of the interaction between a person and his environment, which among others consists of students, teachers, library staff, principals, materials or subject matter and various learning resources and facilities (projectors, televisions, computers, videos, libraries, and others). One of the signs that someone has learned is a change in behavior in that person caused by changes in the level of knowledge, skills, and attitudes (Qistina et al., 2019).

According to (Wijayanti & Ekantini, 2023), IPAS is a subject that aims to build science literacy. The purpose of this subject is to strengthen students to study more complex natural and social sciences in junior high school. In studying the environment, students see natural and social phenomena as interrelated. Students get used to observing or observing, researching and doing activities that encourage other inquiry skills which are very important as a foundation for learning before continuing to higher education. Meanwhile, according to

(Sugih et al., 2023) the purpose of IPAS learning in this curriculum is to develop inquiry skills, understand themselves and their environment that develop knowledge and concepts in learning. IPAS learning helps students grow their curiosity about the knowledge of phenomena that occur around them. In addition, (Susanto & Airlanda, 2023) reveals that the learning objectives of IPAS in this curriculum are to develop interest and curiosity, play an active role, develop inquiry skills, understand themselves and their environment, and develop knowledge and understanding of IPAS concepts. IPAS learning in elementary schools can be applied by using a learning model in its implementation.

Learning is said to be effective if there are facilities for students to learn and develop their cognitive, affective and psychomotor aspects so that the learning objectives above can be realized. One of the facilities that can be provided in learning and teaching activities is learning media such as creative teaching multimedia (Nafi'a et al., 2020) . According to (Fauzi et al., 2023) , Teaching multimedia is defined as anything that can be used to channel messages or lesson content, stimulate students' thoughts, feelings, attention and abilities, so as to encourage teaching and learning activities. Various forms of multimedia can be used to enhance the learning experience towards the concrete. Teaching using multimedia does not only use mere words (verbal symbols), so we can expect the results of a more meaningful learning experience by students. With the completion of multimedia learning in teaching and learning activities, students will be more active in learning so that learning achievement can increase. Mardika (in Pasambo & Radia, 2022) also argues that multimedia in the teaching and learning process can be used in three functions, namely: 1) multimedia can function as an instructional aid; 2) multimedia can function as an interactive tutorial, for example in simulations; 3) multimedia can function as a source of learning instructions, for example, multimedia is used to store a series of microscope slides or radiographs. Multimedia is useful in the learning process, making: (1) teaching is more interesting to students so that it can generate learning motivation; (2) teaching materials are clearer in meaning so that they can be understood by students and allow students to master learning objectives well; (3) teaching methods are more varied; (4) students do more learning activities, because they do not only listen to the teacher's explanation but are involved in other activities such as observing, doing, demonstrating and others.

The use of interactive multimedia in learning certainly has advantages, namely: (1) the learning system is more innovative and interactive; (2) educators will always be required to be creative and innovative in finding learning breakthroughs; (3) being able to combine text, images, audio, music, image or video animation in a mutually supportive unit to achieve learning objectives; (4) increase the motivation of students during the teaching and learning process until the desired learning objectives are obtained; (5) being able to visualize material that has been difficult to explain only with conventional explanations or props; and (6) train students to be more independent in gaining knowledge (Dwiyi et al., 2020) , 2020) .

With the development in the study of science and technology, it is hoped that all are used as well as possible to help the learning process in the classroom. Apart from being a supporting tool, the use of teaching tools (media) in the learning process can also be a learning transformation tool that previously used the lecture method in the classroom. In addition, it is hoped that the use of learning media will be able to grow, interest, desire, motivation, and even bring psychological influences to students. This will realize the learning objectives which in turn can improve the quality of the learning outcomes themselves (Mardiyah, 2021) .

According to (Harahap et al., 2021) , the successful achievement of educational goals at school is influenced by several factors, including student learning motivation. Because motivation is an encouragement given to individuals (students) to carry out learning. A learning is considered a failure if students do not have the enthusiasm to learn, do not have the motivation to learn and do not know something that is learned. Student learning motivation affects student learning outcomes. Learning motivation makes a positive

contribution to student learning outcomes. Students who have motivation will increase activity and maintain perseverance in learning so that their learning outcomes are getting better (Lestari & Irawati, 2020) . Wlodkowski (in Zuleni & Marfilinda, 2022) , explains motivation as a condition that causes or gives rise to certain behaviors, as well as those that give direction and persistence to these behaviors. Motivation is a support for the implementation of a learning process, in other words motivation as a driving force for students to carry out a learning activity so that students excel.

Motivation has a very big role in learning. Indicators to measure the level of motivation of students in the learning process include: 1) desire and desire to succeed, 2) encouragement and need to learn, 3) hopes and ideals in the future, 4) rewards in learning, 5) interesting activities for learning, 6) conducive learning environment. Indicators are intended as a tool to provide a description of motivation, so that to measure student learning motivation, these indicators can become benchmarks. The motivation of students to learn can increase is also greatly influenced by environmental conditions and the teacher's ability to design and deliver material, so that the motivation that arises can also influence students to be more active in learning (Jamaluddin et al., 2022) .

## CONCLUSION

Based on the explanation of the research results in class IV SDIP YLPI Pekanbaru, the Sig. (2-tailed) of  $<0.001 <0.05$ , it can be concluded that there is an effect of creative teaching multimedia in IPAS subjects on the motivation of fourth grade students of SDIP YLPI Pekanbaru. It can also be seen that there is an average or mean value on the control class posttest of 72.76 and in the experimental class of 87.65. This value can be interpreted that the experimental class average is higher when compared to the control class average. From this exposure, it can be concluded that  $H_a$  is accepted and  $H_0$  is rejected.

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