The Effect of Picture and Picture Interactive Model to Increase Student's Learning Motivation in Elementary Science Learning

Aini Wira Dharma Putri[1]; Enik Setiyawati[2]

[1,2]*Department of Elementary School Education, Universitas Muhammadiyah Sidoarjo, Indonesia*
[1]*Corresponding Email: armakasmidi11@gmail.com, Phone Number: 0895 xxxx xxxx*

Article History:
Received: Apr 30, 2023
Revised: May 25, 2023
Accepted: Jun 05, 2023
Online First: Jun 12, 2023

Keywords:
Interactive,
Motivation,
Picture and Picture.

Kata Kunci:
Interaktif,
Motivasi,
Picture and Picture.

How to cite:
Putri, A. W. D., & Setiyawati, E. (2023). The Effect of Picture and Picture Interactive Model to Increase Student's Learning Motivation in Elementary Science Learning. *Edunesia: Jurnal Ilmiah Pendidikan, 4*(3), 1097-1108.

Abstract: This research aims to determine the influence of the interactive picture and picture learning model on improving students' learning motivation in elementary school science. The author used quantitative research, which involved the entire class V A population at Oro-Oro Ombo Wetan 1 Elementary School in the academic year 2022-2023. The research method used was Pre Experimental Design with a non-pure experimental model (one-shot case study). Data collection was conducted using a questionnaire to measure the increase in students' learning motivation in class V A. For data analysis, the independent variable (x) was the interactive picture and picture learning model, while the dependent variable (y) was the improvement in students' learning motivation. The analysis used was the one-sample t-test, with a significance level of 5% (0.05), resulting in a significant t-value (2-tailed) of 0.006. Therefore, the obtained significance value of t 0.006 < 0.05 means that the null hypothesis (H0) is rejected, and the alternative hypothesis (Ha) is accepted. Hence, there is an influence of the interactive picture and picture model on improving students' learning motivation in elementary school science at Oro-Oro Ombo Wetan 1 Elementary School in class V A.

Abstrak: Penelitian ini bertujuan mengetahui adanya pengaruh model pembelajaran interaktif picture and picture untuk meningkatkan motivasi belajar siswa dalam pembelajaran IPA Sekolah Dasar. Jenis penelitian yang digunakan penulis adalah penelitian kuantitatif yang menggunakan populasi seluruh kelas V A di Sekolah Dasar Negeri Oro-Oro Ombo Wetan 1 pada tahun pelajaran 2022-2023, dengan metode penelitian Pre Experimental Design yang menggunakan model eksperimen tidak murni (one shot case study). Pada pengumpulan data ini menggunakan lembar angket yang digunakan untuk mengukur adanya peningkatan motivasi belajar siswa pada kelas V A. Untuk pengkajian data penelitian ini, yang menjadi variabel x (variabel bebas) yaitu model pembelajaran interaktif picture and picture, sedangkan variabel y (variabel terikat) yaitu meningkatkan motivasi belajar siswa. Analisis yang digunakan yaitu one sample t-test, dengan taraf signifikan 5% (0,05) di dapat dengan nilai signifikan t (2-tailed) = 0,006. Dengan demikian didapatkan nilai signifikan t 0,006 < 0,05 berarti, menolak hipotesis nihil (H_0) beserta hipotesis kerja (H_a) diterima. Sehingga ada pengaruh antara model interaktif picture and picture terhadap peningkatan motivasi belajar siswa dalam pembelajaran IPA di Sekolah Dasar Negeri Oro-Oro Ombo Wetan 1 pada kelas V A.

https://doi.org/10.51276/edu.v4i3.518

A. Introduction

Learning is a term used to describe teacher and student activities (Purnomo, 2015). It involves teaching students using educational principles and learning theory, which are the main determinants of educational success (Wahyuningsih et al., 2022). Learning can also be interpreted as the assistance teachers provide students in a school environment, enabling them to gain knowledge, attitudes, and skills (Setyawati et al., 2019). The success of learning objectives is one factor determining the success of teaching and learning, as learning encompasses the entire educational process at school (Emda, 2017). Learning is a cyclical process that helps students perform well, and teachers use learning models to ensure successful experiences.

Before delving into picture-and-picture learning, it is important to note that cooperative learning models that prioritize cooperation were initially used in picture-and-picture. However, this study utilized an interactive model. According to (Raztiani & Permana, 2017), an interactive learning model is a student-centered approach where students are actively involved in classroom learning. This interactive model helps foster student confidence in expressing their opinions. Meanwhile, (Juniari & Putra, 2021) define the interactive model as a teaching and learning approach that emphasizes students actively developing their knowledge by exploring the questions they ask. The model aims to provide students with clarification and gauge their responses. The advantages of this model include fostering positive behavior among individuals in a group, making the teacher's experience more dynamic, and enabling students to solve problems both in groups and individually (Marus, 2017). Consequently, students who struggle to understand learning concepts can be motivated through the interactive model.

According to (Ikrom & Putri, 2021), picture and picture learning involves using visual media as learning aids. Similarly, (Ramdana, 2012) describes picture and picture learning as a sequential use of images logically prepared by the teacher. Before the learning process begins, the teacher should arrange the images in a meaningful sequence, either in large or small form. Students are expected to sort the scrambled pictures and then arrange them in a logical sequence, stimulating their imagination and understanding of the learning material. Therefore, picture and picture learning is a method that utilizes visual media, pairing or sequencing images logically.

Motivation plays a crucial role in driving individuals to engage enthusiastically in activities. A student's learning ability significantly depends on their motivation (Ashlan & Bahri, 2023). The term "motivation" derives from "motive," which is the driving force that encourages someone to act. Motivation can be consciously or unconsciously triggered, spurring individuals to achieve their goals (Laka et al., 2020). Learning motivation can be categorized into two types: intrinsic motivation, which arises from a student's interest, and extrinsic motivation, which stems from external factors outside the learning situation (Fauziah et al., 2017). Students' motivation to engage in learning varies, with some displaying high motivation while others exhibit low motivation (Faradita, 2017). Several factors contribute to fostering learning motivation, including academic success, the

https://doi.org/10.51276/edu.v4i3.518

importance of achieving high grades, learning satisfaction, and understanding one's position in the class (Warti, 2016).

Motivation is influenced by internal and external factors (Ulfa & Nasryah, 2020). Internal factors arise from students themselves, such as their interest in learning and their physical health. On the other hand, external factors originate from outside sources, including teachers, the learning environment (family, community, school), and the methods and strategies employed. Therefore, motivation consciously or unconsciously drives individuals to take action in order to achieve their goals. Students with high learning motivation display a serious and genuine interest in learning, resulting in satisfactory learning outcomes. Conversely, students needing more motivation often feel bored during the learning process. Based on observations in class V at SDN Oro-Oro Ombo Wetan 1, the teacher predominantly uses a lecture model in science classes, leading to decreased student learning motivation.

The teacher's lack of involvement in effectively and intelligently guiding students during the learning process contributes to students' lack of enthusiasm and difficulty understanding the material, consequently affecting their learning motivation. Low motivation makes it challenging for students to engage in learning, particularly in science, which requires perseverance and thoroughness (Sari et al., 2020). Science learning goes beyond passive listening and note-taking; it requires active participation in various activities, such as asking questions, practicing, completing homework, presenting in front of the class, and engaging in discussions. In elementary schools, science education aims to cultivate process expertise, develop students' interest in observing flora and fauna in their surroundings, foster a scientific outlook, and enhance students' ability to apply scientific concepts to explain phenomena (Marlina, 2020). Therefore, science learning involves experiences, reality, design, and doctrine (Saputri et al., 2016).

Samatowa (Yeni et al., 2020) asserts that science entails rational and objective knowledge about the universe and its contents. Walid (2017) describes natural science (IPA) as a field that explores phenomena through observation, experimentation, drawing conclusions, and constructing theories. It connects different elements, systematically organizing nature based on experimental results and observations. Science encompasses real events, principles, and concepts (Astiti & Murda, 2017). The process dimension of science involves the scientific method, which provides a relevant framework for students' growth. By exploring science with a sense of curiosity, children acquire information and develop their own understanding of nature. Science learning relies on theories that explain natural events and encompasses scientific methods, such as experiments and observations (Rustaman, 2021).

Given the explanation above, the researchers are interested in implementing the picture-and-picture interactive learning model at SDN Oro-Oro Ombo Wetan 1 in Pasuruan. This model utilizes pictures as learning media, requiring students to logically sequence and think critically about the material presented through the images. The advantage of picture-and-picture learning lies in its strong integration of subjects within the learning process. The

https://doi.org/10.51276/edu.v4i3.518

teacher presents the material using easily understandable pictures, enabling faster comprehension. This approach expands students' thinking and understanding as the teacher engages with them through the latest pictures, allowing students to arrange these images logically (Paramita, 2019). Thus, the interactive picture and picture model aligns with science education in elementary schools.

Based on previous research conducted by (Yulisa et al., 2022), it is evident that using the picture-and-picture learning model can influence student learning motivation. Upon analyzing previous research, similarities, and differences can be identified with this study. The similarity lies in the utilization of the picture and picture interactive model to enhance student learning motivation, while the difference lies in the research location and subject of study. This study aims to determine the impact of the picture-and-picture interactive learning model on student learning motivation and measure the increase in learning motivation during science classes.

B. Method

This type of research is quantitative, and the researcher employs an experimental method known as Pre-Experimental Design. This method uses only one experimental group without a control group. It is referred to as "Pre-Experimental" because it does not fully qualify as a true experiment due to external variables contributing to the formation of the dependent variable (Sugiyono, 2019). The research design utilized by the researchers to measure student learning motivation is the One-Shot Case Study, following the design paradigm.

X	O

Figure 1. Design One-Shot Case Study

Description:
X : Treatment in Experimental Class
O : Observation of Results

The paradigm can be explained as follows: a group is given treatment or intervention, and the outcomes are observed. The population for this study consists of all fifth-grade students at SDN Oro-Oro Ombo Wetan 1 in the 2022/2023 academic year, specifically classes VA and VB. The sampling technique used is random sampling through a lottery, and after the lottery, class VA was selected as the sample. The variables used in this study are as follows:

a. Independent variable: The variable that causes changes. In this study, the independent variable is the use of the interactive learning model called picture and picture.
b. Dependent variable: The variable that is influenced. In this study, the dependent variable is student learning motivation.

The assessment instrument used in this study is a questionnaire. The questionnaire aims to collect information about student learning motivation as reflected in the science

https://doi.org/10.51276/edu.v4i3.518

learning process. The questionnaire used in this study was adapted from a previous research questionnaire by Satrio (2021).

Data collection techniques in this study involve the use of questionnaires and documentation. The questionnaire consists of 30 statements that students will answer using the Likert scale technique, with response options including "Strongly Agree," "Agree," "Disagree," and "Strongly Disagree".

Before administering the questionnaire to students, the researcher will conduct validity and reliability tests. In the validity test, the researcher will use the product-moment correlation technique to determine the correlation coefficient (r_{count}), with a significance level of 5%. If the calculated r_{count} is greater than the r_{table} value, the data is considered valid for testing; otherwise, it is considered invalid ($r_{count} > r_{table}$ = valid, $r_{count} < r_{table}$ = invalid). The correlation index (r) will be interpreted if the instrument is valid. The reliability test will be conducted using Cronbach's alpha formula, with a benchmark of 0.60. If Cronbach's alpha value is greater than 0.60, the instrument is considered reliable, while a value lower than 0.60 indicates unreliability.

The data analysis technique employed in this study includes a normality test, followed by hypothesis testing. Hypothesis testing aims to determine the truth. Hypotheses can be considered preliminary answers based on relevant or similar theories without direct factual evidence from the field. The hypotheses are based on cognitive learning theory, which states that the success of a learning process should be evaluated based on the learning process itself rather than just the final results or student grades. The hypotheses will be tested using a set of criteria: if the significance value of t is less than 0.05, then H0 (null hypothesis) is rejected, and Ha (alternative hypothesis) is accepted, indicating a significant influence of the independent variable on the dependent variable. Conversely, if the significance value of t is greater than 0.05, then H0 is accepted, and Ha is rejected, indicating no significant influence of the independent variable on the dependent variable.

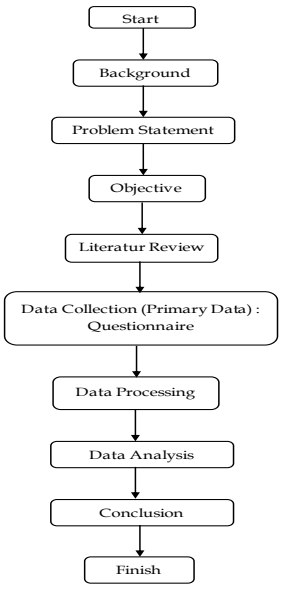

Figure 2. Research Flowchart

https://doi.org/10.51276/edu.v4i3.518

C. Results and Discussion

Result

Data collection for the research was conducted at SDN Oro-Oro Ombo Wetan 1 Pasuruan in class VA. The researcher utilized a questionnaire as the primary data collection instrument. The questionnaire consisted of 30 statement items and was administered during two interactive learning sessions using the picture and picture model. The main objective of the research was to examine the students' motivation in learning science through the implementation of this model.

The validity and reliability of the questionnaire were assessed in the initial stages of the research. At the end of the lesson, the questionnaires were distributed to the students to gauge their motivation levels. The validity of the items was analyzed using the SPSS 26.00 for the Windows program, employing the product-moment correlation with a significance level of 5%. The obtained value for the r_{table} was 0.361. The questionnaire items should have an r_{count} value greater than r_{table} to be considered valid.

The trial of the 30 items in the student learning motivation questionnaire was conducted with a sample size of 32 respondents, comprising the students of class VA at SDN Oro-Oro Ombo Wetan 1. The results of this trial are presented in the table below:

Table 1. Validity Test Results

No Item	r_{count}	r_{table}	Description
1	0,394	0,361	Valid
2	0,394	0,361	Valid
3	0,436	0,361	Valid
4	0,436	0,361	Valid
5	0,465	0,361	Valid
6	0,543	0,361	Valid
7	0.423	0,361	Valid
8	0,548	0,361	Valid
9	0,394	0,361	Valid
10	0,892	0,361	Valid
11	0,892	0,361	Valid
12	0,892	0,361	Valid
13	0,442	0,361	Valid
14	0,727	0,361	Valid
15	0,892	0,361	Valid
16	0,590	0,361	Valid
17	0,404	0,361	Valid
18	0,892	0,361	Valid
19	0,447	0,361	Valid
20	0,590	0,361	Valid
21	0,528	0,361	Valid
22	0,603	0,361	Valid
23	0,603	0,361	Valid
24	0,603	0,361	Valid

https://doi.org/10.51276/edu.v4i3.518

25	0,603	0,361	Valid
26	0,447	0,361	Valid
27	0,447	0,361	Valid
28	0,541	0,361	Valid
29	0,590	0,361	Valid
30	0,590	0,361	Valid

Based on the data obtained from the validity test of the student learning motivation questionnaire, it can be concluded that all 30 statement items in the questionnaire are considered valid as $r_{count} > r_{table}$. Subsequently, a reliability test was conducted using Cronbach's alpha formula in SPSS 26.00 for Windows. If Cronbach's alpha value is greater than 0.60, the instrument is considered reliable; otherwise, it is deemed unreliable. In the case of this study, with a sample size of 32 respondents, the reliability test results indicate that the student learning motivation scale instrument is reliable. The reliability test results are presented below:

Table 2. Reliability Test Results

Cronbach's Alpha	N of Items
,752	31

Based on the information provided, Table 2 shows the reliability test results for the questionnaire administered to the students. All items are deemed valid since Cronbach's alpha value of 0.752 is greater than the acceptable threshold of 0.60. This indicates that the questionnaire can effectively measure the student learning motivation scale.

The researcher conducted a normality test on the data following the validation process. This study utilized the Kolmogorov-Smirnov test to determine whether the data followed a normal distribution. The significance value (sig value) criterion for normality is typically set at > 0.05. The results of the data normality test, conducted using SPSS 26.00 for Windows, are as follows:

Table 3. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Nilai
N		32
Normal Parameters[a,b]	Mean	97,9688
	Std. Deviation	15,19865
Most Extreme Differences	Absolute	,193
	Positive	,091
	Negative	-,193

https://doi.org/10.51276/edu.v4i3.518

Test Statistic	,193
Asymp. Sig. (2-tailed)	,173[c]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Based on the information provided, Table 3 displays the results of the Kolmogorov-Smirnov test, indicating a significance value (sig value) of 0.173. Since this value is greater than the commonly used threshold of 0.05, it can be concluded that the data follows a normal distribution. With the data found to be normally distributed, the research can proceed using the one-sample t-test. The results of the one-sample t-test, obtained through statistical analysis using SPSS 26.00 for Windows, are presented in the following table:

Table 4. One SampleT-Test Result

	Test Value = 90					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Total	2,966	31	,006	7,96875	2,4891	13,4484

Based on the established testing criteria, the hypothesis can be evaluated. If the significance value (p-value) of the t-test is less than 0.05, the null hypothesis (H0) is rejected, and the alternative hypothesis (Ha) is accepted. This indicates a significant influence of the independent variable on the dependent variable. Conversely, if the significance value (p-value) is greater than 0.05, H0 is accepted, and Ha is rejected, implying no significant influence between the independent and dependent variables.

In this case, a significant t-value of 0.006 < 0.05 was obtained, leading to the rejection of H0 and the acceptance of Ha. Thus, there is a significant influence of the interactive picture and picture model on increasing student learning motivation.

Discussion

This research is a quasi-experimental study conducted to investigate the effect of the interactive picture and picture model on enhancing student learning motivation in elementary science, specifically in class VA at SDN Oro-Oro Ombo Wetan 1, Rembang District, Pasuruan Regency. The study utilized a research sample of 33 students from class VA as the experimental group. This study did not employ a control group since it adopted a one-shot case study design.

In the experimental group, direct learning using the interactive picture and picture model was implemented, followed by administering a questionnaire to measure student learning motivation after the treatment. The data revealed that the average score of student learning motivation in the experimental group prior to the treatment was 55.1%. However,

https://doi.org/10.51276/edu.v4i3.518

after the treatment, the average student learning motivation increased by 42.8%, resulting in a final average score of 97.9%. Therefore, the interactive picture and picture model effectively enhance student learning motivation in elementary science.

The observed improvement in the experimental group can be attributed to using the picture and picture interactive learning model. Students engage with visuals as a tool for learning, leading to increased attentiveness, active participation, and enjoyment during the learning process. The interactive nature of picture and picture learning fosters a stimulating, innovative, creative, and enjoyable environment. The arrangement of pictures in front of the class and individual students' involvement in sorting and organizing them makes the interactive picture and picture model captivating, thus motivating students to participate in the learning process actively.

The activities involved in the interactive picture and picture learning model capture students' interest and make the learning process more enjoyable. The visual aids presented by the teacher facilitate student understanding of the taught material. The picture-and-picture interactive learning model enhances student motivation and cultivates logical and systematic thinking skills. Moreover, it provides opportunities for students to apply their knowledge and skills in real-world contexts.

Based on the explanation above, it is evident that the picture-and-picture interactive learning model is more effective in increasing student learning motivation in science subjects related to the water cycle or aquatic life cycle compared to the traditional lecture-based learning model. Learning in the experimental group, which utilized the interactive picture and picture model, was more engaging and enjoyable for students as they directly observed the displayed pictures. Students had ample opportunities for active participation in the learning process, making it more practical and concrete.

D. Conclusion

Based on the results of data analysis and discussion, it can be concluded that there is an effect of the picture-and-picture interactive learning model on increasing student learning motivation in science subjects in Class V A at SDN Oro-Oro Ombo Wetan 1, Rembang Pasuruan Regency. Based on the data obtained, the average score of student learning motivation in the experimental class before treatment was only 55.1%. However, after treatment, the average student learning motivation increased by 42.8%, resulting in a final average of 97.9%. The increase in the experimental class can be attributed to the picture-and-picture interactive learning model, where students learn through pictures as a medium in the learning process. Students pay full attention to what the teacher says, become more active in learning, and feel happy when invited to participate in front-of-class activities. As a result, students are more motivated to engage in learning activities.

Acknowledgment

With the permission and guidance of Allah SWT, I am able to complete this scientific work. I want to express my gratitude to Mrs. Enik Setiyawati, M.Pd, my supervisor, for

https://doi.org/10.51276/edu.v4i3.518

providing guidance and corrections throughout the preparation of this scientific work. Additionally, I would like to thank the principal and teachers of SDN Oro-Oro Ombo Wetan 1, Rembang, for permitting me to conduct my research.

References

Ashlan, S., & Bahri, S. (2023). Effect of Work Environment and Innovative Behavior on Teachers Work for Motivation State High School in Banda Aceh City. *Edunesia: Jurnal Ilmiah Pendidikan*, *4*(1), 210-224. https://doi.org/10.51276/edu.v4i1.323

Astiti, D. K. S., & Murda, I. N. (2017). Penerapan Metode Pembelajaran Jigsaw sebagai Upaya Meningkatkan Hasil Belajar IPA pada Siswa Kelas IV SD. *Journal of Education Action Research, 1*(2), 94. https://doi.org/10.23887/jear.v1i2.12043

Emda, A. (2018). Kedudukan Motivasi Belajar Siswa dalam Pembelajaran. *Lantanida journal*, *5*(2), 172-182. https://doi.org/10.22373/lj.v5i2.2838

Faradita, M. N. (2018). Pengaruh Model Pembelajaran Kooperatif Tipe Course Review Horay terhadap Motivasi Belajar Siswa Mata Pelajaran IPA di Sekolah Dasar. *ELSE (Elementary School Education Journal): Jurnal Pendidikan dn Pembelajaran Sekolah Dasar*, *1*(2b), 185-192. https://doi.org/10.30651/else.v1i2b.1404

Fauziah, A., Rosnaningsih, A., & Azhar, S. (2017). Hubungan Antara Motivasi Belajar dengan Minat Belajar Siswa Kelas IV SDN Poris Gaga 05 kota Tangerang. *JPSD: Jurnal Pendidikan Sekolah Dasar,* *4*(2), 47-53. https://doi.org/10.26555/jpsd.v4i2.a9594

Ikrom, F. d., & Putri, Y. (2021). Pengaruh Model Picture and Picture pada Pelajaran IPA di Sekolah Dasar (Studi Literatur). *Jurnal JP3M (PGSD, PJKR, PPKN dan Matematika)*, *2*(01), 1-11.

Juniari, I. G. A. O., & Putra, I. M. (2021). Pengembangan Media Pembelajaran Multimedia Interaktif Model DDD-E pada Muatan Pelajaran IPA Kelas V SD. *Jurnal Edutech Undiksha, 9*(1), 140–148. https://doi.org/10.23887/jeu.v9i1.33091

Laka, B. M., Burdam, J., & Kafiar, E. (2020). Role of Parents in Improving Geography Learning Motivation in Immanuel Agung Samofa High School. *Jurnal Inovasi Penelitian, 1*(2), 69–74. https://doi.org/10.47492/jip.v1i2.51

Marlina, L. (2020). Kajian Pengaruh Penggunaan Model Pembelajaran Picture and Picture terhadap Prestasi Belajar IPA Siswa Sekolah Dasar. *Ainara Journal (Jurnal Penelitian Dan PKM Bidang Ilmu Pendidikan)*, *1*(2), 56-61. https://doi.org/10.54371/ainj.v1i2.14

Marus, A., Marzuki, M., & Marli, S. (2018). Dampak Model Picture and Picture terhadap Hasil Belajar dalam Pembelajaran IPS di Sekolah Dasar. *Jurnal Pendidikan dan Pembelajaran Khatulistiwa (JPPK)*, *7*(8), 1-9. http://dx.doi.org/10.26418/jppk.v7i8.27417

https://doi.org/10.51276/edu.v4i3.518

Paramita, N. M. A. S. (2019). Pengaruh Model Pembelajaran Picture and Picture Berorientasi Pendidikan Karakter terhadap Motivasi Belajar IPS Siswa Kelas V. *Journal of Education Technology*, *3*(1), 1–5. https://doi.org/10.23887/jet.v3i1.17957

Purnomo, Y. W. (2015). *Pembelajaran Matematika untuk PGSD*. Jakarta: Erlangga.

Ramdana, N. (2021). *Pengaruh Penerapan Model Pembelajaran Kooperatif Tipe Picture and Picture terhadap Hasil Belajar IPA Siswa Kelas IV SDN 138 Inpres Mangulabbe Kecamatan Mappakasunggu Kabupaten Takalar*. Undergraduate Thesis. Makassar: Universitas Negeri Makassar.

Raztiani, H., & Permana, I. (2017). Pengaruh Model Pembelajaran Interaktif terhadap Motivasi Belajar Siswa. *Parole: Jurnal Pendidikan Bahasa dan Sastra Indonesia, 2*(3), 433-440. https://doi.org/10.22202/economica.2017.v6.i1.1941

Rustaman, N. (2021). *Materi dan Pembelajaran IPA SD*. Jakarta: Universitas Terbuka.

Saputri, A. D., Hartono, H., & Handayani, L. (2016). Integrasi Tembang Pocung dalam Pembelajaran Kooperatif Tebak Kata pada Tema Alat Optik untuk Mendeskripsikan Sikap Ilmiah dan Motivasi Belajar Siswa. *UPEJ Unnes Physics Education Journal*, *5*(2), 85-94. https://doi.org/10.15294/upej.v5i2.13627

Sari, R. K., Chan, F., Hayati, D. K., Syaferi, A., & Sa'diah, H. (2020). Analisis Faktor Rendahnya Motivasi Belajar Siswa Dalam Proses Pembelajaran Ipa Di Sd Negeri 80/I Rengas Condong Kecamatan Muara Bulian. *Journal of Biology Education Research, 1*(2), 63–79. https://doi.org/10.32332/al-jahiz.v1i2.3146

Satrio, E. (2021). *Pengaruh Model Pembelajaran Interaktif Tipe Picture and Picture terhadap Motivasi Belajar Siswa pada Mata Pelajaran IPA Kelas III SD Negeri 38 Bengkulu Selatan*. Undergraduate Thesis. Bengkulu: IAIN Bengkulu.

Setyawati, S., Kristin, F., & Anugraheni, I. (2019). Penerapan Model Pembelajaran Problem Based Learning (PBL) untuk Meningkatkan Keaktifan dan Hasil Belajar Siswa Kelas 2 SD. *Jurnal Ilmiah Pengembangan Pendidikan (JIPP)*, *6*(2), 93-99.

Sugiyono. (2019). *Metode Penelitian Pendidikan*. Bandung: Alfabeta.

Ulfa, M. S., & Nasryah, C. E. (2020). Pengembangan Media Pembelajaran Pop – Up Book untuk Meningkatkan Motivasi Belajar Siswa Kelas IV SD. *Edunesia: Jurnal Ilmiah Pendidikan, 1*(1), 10–16. https://doi.org/10.51276/edu.v1i1.44

Wahyuningsih, N. M., Yuliyati, D. R. L., & Hajron, K. H. (2022). Upaya Meningkatkan Motivasi Belajar Siswa Kelas IV SD Menggunakan Metode Picture and Picture. In *Prosiding Konferensi Ilmiah Dasar*, *3*, 1693-1699.

Walid, A. (2017). *Strategi Pembelajaran IPA*. Yogyakarta: Pustaka Belajar.

https://doi.org/10.51276/edu.v4i3.518

Warti, E. (2016). Pengaruh Motivasi Belajar Siswa terhadap Hasil Belajar Matematika Siswa di SD Angkasa 10 Halim Perdana Kusuma Jakarta Timur. *Mosharafa: Jurnal Pendidikan Matematika*, *5*(2), 177-185. https://doi.org/10.31980/mosharafa.v5i2.273

Yeni, H. O., Anggraini, C., & Meilina, F. (2020). Upaya Meningkatkan Hasil Belajar Siswa dalam Pembelajaran IPA dengan Menggunakan Media Visual Pada Siswa Kelas IV SDN 002 Tebing Kabupaten Karimun Tahun Ajaran 2017/2018. *Jurnal Minda*, *1*(2), 10-18.

Yulisa, R., Safiah, I., & Fitriani, S. (2022). Pengaruh Model Pembelajaran Interaktif Picture And Picture terhadap Motivasi Belajar Siswa pada Subtema Aku dan Cita-Citaku Kelas IV SD Negeri Lampeuneurut. *Jurnal Ilmiah Mahasiswa Pendidikan Guru Sekolah Dasar*, *7*(3), 25-30.