



## **The Utilization of Picture Story Book: Can It Increase Students' Critical and Creative Thinking Skills?**

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*Received: 31 December 2022; Revised: 20 June 2023; Accepted: 27 July 2023*

**Abstract:** Learning media has an important role in developing students' abilities. However, the use of learning media is still low, especially in developing students' critical and creative thinking skills. This study aims to analyze the increase in critical and creative thinking skills of fifth grade elementary school students in participating in learning using the picture story book learning media. This research was quasi-experimental research with pre-test and post-test designs. The subjects of this study were 50 students at grade V elementary school in cluster IV of Sintang District. The research sample was taken using purposive sampling technique. The research instrument used was a test instrument that aimed to measure the critical and creative thinking skills of fifth grade elementary school students. Research data were analyzed using statistical tests, namely the MANOVA test and the independent sample t-test. The results of this study indicated that there was a significant increase for students who learn by utilizing picture story book learning media in terms of critical and creative thinking skills. The contribution of this research is to contribute thought in improving critical thinking with picture story book.

**Keywords:** creative thinking, critical thinking, picture story book

**How to Cite:** Rindengan, M. (2023). The utilization of picture story book: Can it increase students' critical and creative thinking skills? *Jurnal Prima Edukasia*, 11(2), 176-185. doi: <http://dx.doi.org/10.21831/jpe.v11i2.56854>



### **Introduction**

Learning media has a significant role in the learning process (Durmaz, 2023; Sulistyawati et al., 2021). One of the important roles of learning media is as a means to channel messages from teachers to students (Ain & Mustika, 2021; Yasa et al., 2020). This statement is supported by Latifa et al. (2020) which states that the application of learning media aims to transfer learning materials that can facilitate the development of student learning abilities. In line with this opinion, Suryaningrat et al. (2021) states that the use of learning media can also provide motivation and enthusiasm for students in developing students' conceptual understanding skills. Septinaningrum et al. (2021) also states that learning media is an alternative for teachers to achieve learning goals and create quality and interesting learning.

This learning media makes it easier for students to understand the material provided (Aksoy et al., 2022; Yasa et al., 2020). At the elementary school level, learning media that are easy to use can attract students' attention in learning (Syamsi & Dharma, 2023; Yasa et al., 2020). This condition occurs because elementary school students are still at the level of concrete thinking, where they learn better by seeing, feeling, and trying something independently (Andini et al., 2023; Hermita et al., 2021; Kayhan, 2022).

Teachers need to facilitate students' curiosity and motivation in learning (Özdemir & Gundogan Onderoz, 2022). This is necessary because students' curiosity and motivation can improve students' critical and creative thinking skills (Hermita et al., 2021; Korkmaz et al., 2022). One step in facilitating student curiosity and learning motivation is the use of media in learning. Suryaningrat et al. (2021) states that learning media can facilitate students in understanding the concept of the material being taught. Interactive learning media that integrates contextual problems make it easy for students to understand the material being taught (Utomo et al., 2021). This statement is supported by Rizqiyana et al. (2021) which states that the application of thematic learning media based on the STEM approach can develop students' critical and creative thinking skills.

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Teachers still use conventional learning methods, therefore they have not been able to facilitate students' abilities as a whole (Pereira et al., 2021). This statement is in line with the results of research Yasa et al. (2020) which states that the results of the analysis of the learning process show that teachers do not use interesting learning media and students do not pay attention to teachers during learning. This condition is in line with the opinion Dinayusadewi & Agustika (2020) which states that there is still a lack of application of interactive learning media by teachers in elementary schools. This condition occurs because there is still a lack of understanding and ability of elementary school teachers in designing mathematics learning media (Ain & Mustika, 2021; Widiastuti et al., 2023). As a result, the teacher has difficulty conveying material, especially for abstract material. Therefore, interesting and appropriate learning media are needed to facilitate the process of understanding student material (Gusteti et al., 2021; Subanji et al., 2023).

Learning media that are in accordance with the characteristics of elementary school students which contain elements of images, text, animation, and illustrations that have been adapted to learning materials (Aprilia et al., 2023; Fatkhiyani & Dewi, 2020; Triwahyuningtyas et al., 2022). The application of this learning media makes students become active in participating in class learning (Anggito & Sartono, 2022; Firdaus et al., 2022). One of the learning media that can be implemented in elementary school learning is the picture story book learning media.

Picture story book learning media is a learning media that contains aspects of images, text, and practice questions (Parwati et al., 2022). Sources state that students become more active in learning in class when learning by utilizing this picture story book learning media (Farindhani & Wangid, 2019). Therefore, this study aims to determine the effectiveness of using picture story book learning media to develop critical and creative thinking skills for fifth grade elementary school students.

### **Methods**

This study aims to determine the effectiveness of using picture story book learning media in terms of critical and creative thinking skills of fifth grade elementary school students. This study uses a quantitative approach with experimental research. This experimental research uses a quasi-experimental design with a pre-test and post-test design. In this study design, there was an experimental class and a control class which were not randomly selected but had been selected from several elementary schools as research subjects in cluster IV of Sintang District. This research was conducted at several elementary schools in cluster IV of Sintang District, West Kalimantan, Indonesia.

The subjects of this study consisted of 50 grade V elementary school students in cluster IV of Sintang District. The subjects of this study were taken from 25 students at Sintang 7 Elementary School for the experimental class and 25 students for the control class at Mambok 20 Elementary School. The sampling technique uses purposive sampling with research samples that have been determined according to the knowledge possessed by students, namely high, medium, and low abilities.

Data collection was carried out through questionnaires and test instruments. The needs questionnaire was obtained through the teacher's response to find out the initial problems of fifth grade elementary school students. The test instrument is used to measure the critical and creative thinking skills of fifth grade elementary school students. The feasibility of this research instrument was then tested using validity and reliability tests. Test the validity of this instrument aims to obtain a research instrument with a valid category. Test the validity of this instrument using product moment interrelation with the help of the SPSS application. The instrument is declared valid and feasible to be implemented in research if it fulfills  $r_{xy} > r_{table}$  with a significance level of 5%. The reliability test aims to determine the degree of reliability or constancy of the research instrument. The analysis technique used in the reliability test uses Cronbach Alpha with the help of the SPSS application. The instrument is declared reliable if the degree of constancy is in the interval 0.61 – 0.80 with the category of degree of constancy, namely high reliability.

Data analysis was carried out quantitatively using statistical tests, namely the independent sample t-test and the MANOVA test with the help of the SPSS application. Data analysis begins by carrying out an assumption test consisting of a normality test, homogeneity test, and linearity test.

Results and Discussion

This research was conducted to determine the effectiveness of using picture story book learning media in developing critical and creative thinking skills. Research activities began by analyzing the questionnaire with the aim of obtaining information related to the problems that students and teachers have in the learning process. Based on the need analysis questionnaire, students' critical and creative thinking skills are still low. This condition is indicated by students who are not active in learning. When students present their work, other students find it difficult to provide feedback related to the material presented. This happens because there is still a lack of understanding of students' concepts related to the material provided (Álvarez-Huerta et al., 2022; Ayçiçek, 2021). Atma et al. (2021) states that students' low understanding of concepts is due to several factors such as low learning motivation and the influence of the application of learning methods implemented by the teacher. The learning methods implemented by the teacher must be varied and able to facilitate the characteristics and abilities of elementary school students (Fitriyadi & Wuryandani, 2021; Nawangsari et al., 2022; Suryatin & Sugiman, 2019). One solution to this problem is to implement media in classroom learning. Based on the student response questionnaire, 53% of students strongly agreed if they studied with learning media that integrated images, text, and practice questions. Learning media based on images, text, and practice questions can develop students' curiosity and learning motivation (Dewi & Rukmini, 2019; Maryati et al., 2019; Sulthon et al., 2021). This student's curiosity and learning motivation are needed to develop critical and creative thinking skills (Facione, 2020; Gunawan & Suhardi, 2019). Therefore, researchers carry out learning that utilizes picture story book learning media to develop critical and creative thinking skills of fifth grade elementary school students.

Before the implementation of the research begins, the researcher first prepares research instruments and tests the validity and reliability of the instruments. Test the validity of the instrument includes a critical thinking skill test instrument and a creative thinking skills test instrument. The results of the validity test of the critical thinking skill test instrument are presented in Table 1.

**Table 1.** Results of the Validity Test of the Critical Thinking Skill Test Instrument

Item	$\alpha$	Sig.	$r_{count}$	Desc.
1		0.013	.488*	Valid
2		0.006	.532**	Valid
3		0.000	.752**	Valid
4		0.000	.706**	Valid
5	0.05	0.001	.633**	Valid
6		0.000	.649**	Valid
7		0.000	.706**	Valid
8		0.000	.661**	Valid
9		0.020	.461*	Valid
10		0.001	.633**	Valid

Table 1 shows that based on the Pearson product moment test on the critical thinking skills test instrument, it states that there are 10 test items that are declared valid so that they can be used to measure the critical thinking skills of fifth grade elementary school students. The results of the validity test of the creative thinking skill test instrument are shown in Table 2.

**Table 2.** Results of the Validity Test of the Creative Thinking Skill Test Instrument

Item	$\alpha$	Sig.	$r_{count}$	Desc.
1		0.004	.551**	Valid
2		0.012	.493*	Valid
3	0.05	0.013	.492*	Valid
4		0.003	.568**	Valid
5		0.008	.519**	Valid

Based on Table 2, there are five creative thinking skill test items that meet valid criteria so that they can be used to measure the creative thinking skill of fifth grade elementary school students. After carrying out the validity test, then the instrument reliability test was carried out. Instrument reliability using Cronbach Alpha with the help of the SPSS application. The results of the instrument reliability test are presented in Table 3.

**Table 3.** Test Instrument Reliability Results

<b>Instrument</b>	<b>Reliability Estimation</b>
Critical Thinking Skills	0.782
Creative Thinking Skills	0.611

Table 3 states that the estimated reliability of the test instruments for critical and creative thinking skills each scored 0.782 and 0.611 in the high reliability category. These results indicate that this test instrument can be used to measure critical and creative thinking skills.

After learning was carried out by utilizing the picture story book learning media, the research data were then analyzed to identify whether there was an increase in the critical and creative thinking skills of fifth grade elementary school students. The first step taken is to test the assumptions before and after the use of picture story book learning media in learning. Data from the normality test results before using the picture story book learning media are presented in Table 4 and Table 5.

**Table 4.** Multivariate Normality Test Results Before Using Media Picture Story Book

<b>Mahalanobis Distance dan Chi Square Test</b>			
<b>Class</b>	<b>Pearson Corelation</b>	<b>Sig.</b>	<b>Desc.</b>
Control	0.931**	0.000	Normal Multivariate
Experiment	0.960**	0.000	Normal Multivariate

**Table 5.** Univariate Normality Test Results Before Using Media Picture Story Book

<b>Class</b>	<b>Variable</b>	<b>Sig.</b>	<b>Condition</b>	<b>Desc.</b>
Control	Critical Thinking	0.002	Sig. < 0.05	Normal Univariate
	Creative Thinking	0.028	Sig. < 0.05	Normal Univariate
Experiment	Critical Thinking	0.000	Sig. < 0.05	Normal Univariate
	Creative Thinking	0.000	Sig. < 0.05	Normal Univariate

Tables 4 and 5 state that the data from the normality test results in the experimental and control classes with sig. < 0.05. These results indicate that the data comes from a normally distributed population. The next step is to test the homogeneity of the covariance matrix. The results of the covariance matrix homogeneity test are presented in Table 6 and Table 7.

**Table 6.** Multivariate Homogeneity Test Results Before Using Media Picture Story Book

<b>Uji Box's M</b>	
<b>Box's M</b>	1.329
F	0.427
Df1	3
Df2	56004.593
Sig	0.733

**Table 7.** Univariate Homogeneity Test Results Before Using Media Picture Story Book

<b>Bartlett Test of Homogeneity of Variance</b>		
<b>Variable</b>	<b>Sig</b>	<b>Desc.</b>
Critical Thinking	0.719	Homogen Univariate
Creative Thinking	0.943	Homogen Univariate

Tables 6 and 7 state that the covariance matrices of the critical and creative thinking skills variables are homogeneous. The next step is to do a linearity test before using picture story book media. The results of the linearity test before using the picture story book media are shown in Table 8.

**Table 8.** Linearity Test Results Before Using Media Picture Story Book

Variable	Experiment Class		Control Class	
	F	Sig.	F	Sig.
Critical Thinking – Creative Thinking	0.512	0.766	1.489	0.245

Table 8 shows that the results of the linearity test in the experimental class obtained sig. 0.512 > 0.05. These results state that the variables of critical and creative thinking skills fulfill the linearity requirements in the experimental class. Similar results were also obtained in the control class. The results of the linearity test in the control class obtained a sig. 1.489 > 0.05, the variables of critical and creative thinking skills also fulfill the linearity requirements in the control class.

The next step is to test the MANOVA assumptions after using the picture story book learning media. This assumption test also includes the normality test, homogeneity test, and linearity test. The results of the normality test after using the picture story book learning media are shown in Tables 9 and 10.

**Table 9.** Multivariate Normality Test Results After Using Media Picture Story Book

Mahalanobis Distance dan Chi Square Test			
Class	Pearson Correlation	Sig.	Desc.
Control	0.820**	0.000	Normal Multivariate
Experiment	0.954**	0.000	Normal Multivariate

**Table 10.** Univariate Normality Test Results After Using Media Picture Story Book

Class	Variable	Sig.	Condition	Desc.
Control	Critical Thinking	0.002	Sig. < 0.05	Normal Univariate
	Creative Thinking	0.02	Sig. < 0.05	Normal Univariate
Experiment	Critical Thinking	0.000	Sig. < 0.05	Normal Univariate
	Creative Thinking	0.000	Sig. < 0.05	Normal Univariate

Tables 9 and 10 state that the data from the normality test results in the experimental and control classes with sig. < 0.05. These results indicate that the data comes from a normally distributed population. The next step is to test the homogeneity of the covariance matrix. The results of the covariance matrix homogeneity test after using the picture story book learning media are presented in Table 11 and Table 12.

**Table 11.** Multivariate Homogeneity Test Results After Using Media Picture Story Book

Uji Box's M	
Box's M	3.414
F	1.098
Df1	3
Df2	56004.593
Sig	0.348

**Table 12.** Univariate Homogeneity Test Results After Using Media Picture Story Book

Bartlett Test of Homogeneity of Variance		
Variabel	Sig	Desc.
Critical Thinking	0.467	Homogen Univariate
Creative Thinking	0.200	Homogen Univariate

Tables 11 and 12 state that the covariance matrices of the critical and creative thinking skills variables are homogeneous. These results indicate that the variance of the pre-test and post-test data for the values of critical and creative thinking skills of fifth grade elementary school students is the same or the homogeneity of variance in all dependent variables is fulfilled.

The final stage of testing this assumption is to carry out a linearity test after using the picture story book media. The results of the linearity test after using the picture story book media are shown in Table 13.

**Table 13.** Linearity Test Results After Using Media Picture Story Book

Variable	Experiment Class		Control Class	
	F	Sig.	F	Sig.
Critical Thinking – Creative Thinking	0.541	0.774	0.873	0.519

Based on Table 13, the significance obtained in the experimental class and control class is greater than 0.05. These results indicate that the variables of critical and creative thinking skills fulfill the linearity requirements in the experimental class and the control class.

The effectiveness of using picture story book learning media in developing critical and creative thinking skills was then analyzed using the MANOVA test. The MANOVA test results before using the picture story book media are presented in Table 14.

**Table 14.** Manova Test Results Before Using Media Picture Story Book

	Statistic Test	F	Sig.
Pillai's Trace	0.027	0.993 <sup>a</sup>	0.375
Wilks' Lambda	0.973	0.993 <sup>a</sup>	0.375
Hotelling's Trace	0.028	0.993 <sup>a</sup>	0.375
Roy's Largest Root	0.228	0.993 <sup>a</sup>	0.375

Table 14 states that the MANOVA test results for all significance values consisting of Pillai's Trace Test, Wilks' Lambda value, Hotelling's Trace value, and Roy's Largest Root value are greater than 0.05. These results indicate that H<sub>0</sub> is accepted. Therefore, it can be concluded that the critical and creative thinking skills of fifth grade elementary school students do not have a significant difference in critical and creative thinking skills between fifth grade elementary school students who have participated in learning by utilizing picture story book learning media with does not use picture story book learning media.

After doing the learning by utilizing the picture story book learning media, the test results were analyzed again using the MANOVA test. The MANOVA test results after using the picture story book learning media are presented in Table 15.

**Table 15.** Manova Test Results After Using Media Picture Story Book

	Statistic Test	F	Sig.
Pillai's Trace	0.027	0.993 <sup>a</sup>	0.375
Wilks' Lambda	0.973	0.993 <sup>a</sup>	0.375
Hotelling's Trace	0.028	0.993 <sup>a</sup>	0.375
Roy's Largest Root	0.228	0.993 <sup>a</sup>	0.375

Based on Table 15, the MANOVA test results after using the picture story book media, based on all the values in the table, namely Pillai's Trace value, Wilks' Lambda value, Hotelling's Trace value, and Roy's Largest Root value show the Sig. of 0.000 which means Sig. < 0.05. That is, H<sub>0</sub> is rejected. Therefore, it can be concluded that there is a significant difference in the critical and creative thinking skills of fifth grade elementary school students who take lessons using picture story book learning media and students who do not use picture story book learning media. These results state that the use of picture story book learning media can improve critical and creative thinking skills of fifth grade elementary school students in cluster IV Sintang District.

To see the difference in the average increase in the value of critical and creative thinking skills of students who take part in learning by using the picture story book learning media, an independent sample t-test is carried out. The results of the independent sample t-test for the variable critical thinking skills are shown in Table 16.

**Table 16.** Results of the Test for Differences in the Improvement of Critical Thinking Skill

Class	N	Equal Variances Assumed		H <sub>0</sub>
		t	Sig. (2-tailed)	
Experiment	25	4.523	0.000	Rejected
Control	25			

Table 16 states that the sig. 0.000 < 0.05. That is, H<sub>0</sub> is rejected. Therefore, it can be concluded that students who take part in learning by using picture story book learning media have increased critical thinking skills that are superior to students who learn not to use picture story book learning media. Judging from the creative thinking skill variable, the results of the difference test on the increase in the creative thinking ability of fifth grade elementary school students are shown in Table 17.

**Table 17.** Results of the Test for Differences in the Improvement of Creative Thinking Skill

Class	N	Equal Variances Assumed		H <sub>0</sub>
		t	Sig. (2-tailed)	
Experiment	25	2.367	0.021	Rejected
Control	25			

Based on Table 17, the sig. obtained by 0.021 < 0.05. That is, H<sub>0</sub> is rejected. Therefore, it can be concluded that students who take lessons using picture story book learning media have an increased ability to think creatively which is superior to students who learn not to use picture story book learning media.

### Conclusion

Learning media picture story book is very necessary in learning in class V elementary school. This statement is proven by the significance results which show that the use of picture story book learning media is effective for developing critical thinking skills and creative thinking abilities of fifth grade elementary school students. Based on Pillai's Trace value, Wilks' Lambda value, Hotelling's Trace value, and Roy's Largest Root value shows the Sig value. of 0.000 which means Sig. < 0.05. These results indicate that there is a significant difference in the critical and creative thinking skills of students who take pictures story book learning media and those who do not use picture story book learning media. Therefore, it can be concluded that there is a significant increase related to the critical and creative thinking skills of students who learn to use the picture story book learning media.

### References

- Ain, S. Q., & Mustika, D. (2021). Training on making mathematics learning media for elementary school teachers. *Jurnal Abdidas*, 2(5), 1080–1085. <https://doi.org/10.31004/abdidas.v2i5.427>
- Aksoy, N., Aksoy, E., & Usta, E. (2022). Metaphors developed by teachers for the gamification approach in education. *Journal of Teacher Education and Lifelong Learning*, 4(2), 150–162. <https://doi.org/10.51535/tell.1185893>
- Álvarez-Huerta, P., Muela, A., & Larrea, I. (2022). Disposition toward critical thinking and creative confidence beliefs in higher education students: The mediating role of openness to diversity and challenge. *Thinking Skills and Creativity*, 43, 1–9. <https://doi.org/10.1016/j.tsc.2022.101003>
- Andini, D. W., Annisa, F. Y., Praheto, B. E., & Taryatman, T. (2023). The development of the sariswara method in accommodating the students' diversity in thematic learning material of elementary school. *Jurnal Prima Edukasia*, 11(1), 72–80. <https://doi.org/10.21831/jpe.v11i1.53254>
- Anggito, A., & Sartono, E. K. E. (2022). The development of multicultural education comics to embed

- tolerance character for 4th grade of elementary school. *Jurnal Prima Edukasia*, 10(1), 66–81. <https://doi.org/10.21831/jpe.v10i1.40504>
- Aprilia, T., Ardiansyah, A. R., & Riyanti, H. (2023). The feasibility of interactive multimedia and online quiz-based gamification on learning management system (LMS) thematic learning courses. *Jurnal Prima Edukasia*, 11(1), 120–133. <https://doi.org/10.21831/jpe.v11i1.55533>
- Atma, B. A., Azahra, F. F., Mustadi, A., & Adina, C. A. (2021). Teaching style, learning motivation, and learning achievement: Do they have significant and positive relationships? *Jurnal Prima Edukasia*, 9(1), 23–31. <http://dx.doi.org/10.21831/jpe.v9i1.33770>
- Ayçiçek, B. (2021). Integration of critical thinking into curriculum: Perspectives of prospective teachers. *Thinking Skills and Creativity*, 41(July), 1–10. <http://dx.doi.org/10.1016/j.tsc.2021.100895>
- Dewi, R. A. K., & Rukmini, P. (2019). The effect of thematic learning by using a scientific approach to increase the multiple intelligence of students. *Jurnal Prima Edukasia*, 7(1), 40–46. <https://doi.org/10.21831/jpe.v7i1.24326>
- Dinayusadewi, N. P., & Agustika, G. N. S. (2020). Development of augmented reality application as a mathematics learning media in elementary school geometry materials. *Journal of Education Technology*, 4(2), 204–210. <https://doi.org/10.23887/jet.v4i2.25372>
- Durmaz, B. (2023). The use of literary elements in teaching mathematics: A bibliometric analysis. *Journal of Teacher Education and Lifelong Learning*, 5(1), 152–172. <https://doi.org/10.51535/tell.1232736>
- Facione, P. a. (2020). Critical thinking: What it is and why it counts. *Insight Assessment*, 1–28. <https://www.insightassessment.com/CT-Resources/Teaching-For-and-About-Critical-Thinking/Critical-Thinking-What-It-Is-and-Why-It-Counts/Critical-Thinking-What-It-Is-and-Why-It-Counts-PDF>
- Farindhani, D. A., & Wangid, M. N. (2019). Scientific-based pictorial storybook with project-based learning method for improving the critical thinking skills of elementary school students. *Jurnal Prima Edukasia*, 7(1), 94–105. <https://doi.org/10.21831/jpe.v7i1.8807>
- Fatkhiani, K., & Dewi, R. A. K. (2020). The development of the textbook of basic science concept contained ethnoscience. *Jurnal Prima Edukasia*, 8(2), 156–165. <http://dx.doi.org/10.21831/jpe.v8i2.32237>
- Firdaus, F. M., Afianti, D., Cahya, R., & Septianingtiyas, A. (2022). The use of macromedia flash application in improving the mathematical understanding of elementary school students. *Jurnal Prima Edukasia*, 10(2), 114–122. <https://doi.org/10.21831/jpe.v10i2.47427>
- Fitriyadi, N., & Wuryandani, W. (2021). Is educational game effective in improving critical thinking skills? *Jurnal Prima Edukasia*, 9(1), 107–117. <http://dx.doi.org/10.21831/jpe.v9i1.35475>
- Gunawan, A., & Suhardi, S. (2019). Thematic-integrative-based pictorial book for improving the understanding reading skills of elementary school students. *Jurnal Prima Edukasia*, 7(2), 150–161. <https://doi.org/10.21831/jpe.v7i2.14993>
- Gusteti, M. U., Rifandi, R., Gustya Manda, T., & Putri, M. (2021). The development of 3D animated video for mathematics learning in elementary schools. *Journal of Physics: Conference Series*, 1940(1). <https://doi.org/10.1088/1742-6596/1940/1/012098>
- Hermita, N., Putra, Z. H., Alim, J. A., Tang, J., Wijaya, T. T., Li, L., Pereira, J., & Tamur, M. (2021). The Hungry Ant: Development of Video-Based Learning on Polyhedron. *International Journal of Interactive Mobile Technologies*, 15(17), 18–32. <https://doi.org/10.3991/ijim.v15i17.23099>
- Kayhan, O. (2022). Understanding Teachers' Classroom Management Anxiety: The Role of Educational Technology Usage in Classrooms. *Journal of Teacher Education and Lifelong Learning*, 4(2), 51–64. <https://doi.org/10.51535/tell.1148725>
- Korkmaz, Ö., Kutlu, A. Ö., & Yavuz, Ş. (2022). Trends in “technology leadership” research in education: scoping review. *Journal of Teacher Education and Lifelong Learning*, 4(1), 12–33. <https://doi.org/10.51535/tell.1088511>
- Latifa, I. S., Pamungkas, A. S., Alamsyah, T. P., & Yandari, I. A. V. (2020). Development of android-based appy pie learning media on mathematics in elementary school. *Prisma Sains: Jurnal Pengkajian Ilmu Dan Pembelajaran Matematika dan IPA IKIP Mataram*, 8(2), 81–90. <https://doi.org/10.33394/j-ps.v8i2.2628>
- Maryati, M., Zubaidah, E., & Mustadi, A. (2019). A content analysis study of scientific approach and authentic assessment in the textbook of Curriculum 2013. *Jurnal Prima Edukasia*, 7(2), 128–138.



- <https://doi.org/10.21831/jpe.v7i2.26792>
- Nawangsari, N. S., Pujiastuti, P., & Gularso, D. (2022). The effect of project-based learning model on PGSD students' critical thinking skill. *Jurnal Prima Edukasia*, 10(1), 19–27. <https://doi.org/10.21831/jpe.v10i1.41565>
- Özdemir, S. M., & Gundogan Onderoz, F. (2022). Teachers' opinions on teaching primary reading and writing through distance education during the covid-19 pandemic period. *Journal of Teacher Education and Lifelong Learning*, 4(1), 34–50. <https://doi.org/10.51535/tell.1123629>
- Parwati, N. L., Liando, N. V. F., & Kumayas, T. A. (2022). The effect of using picture story book to increase students' reading comprehension in class 10 Tondano 1 High School. *JoTELL Journal of Teaching English*, 1(7), 879–887. <https://doi.org/10.36582/jotell.v1i7.4364>
- Pereira, J., Jianlan, T., Wijaya, T. T., Purnama, A., Hermita, N., & Tamur, M. (2021). Using Hawgent mathematics software to help primary school students to read clocks. *Journal of Physics: Conference Series*, 2049(1). <https://doi.org/10.1088/1742-6596/2049/1/012049>
- Rizqiyana, A. F., Setyaningsih, C. A., & Sari, N. (2021). STEM (Science, Technology, Engineering, and Mathematics) approaches using thematic learning media to develop critical thinking. *Dinamika Jurnal Ilmiah Pendidikan Dasar*, 13(1), 20–25. <https://doi.org/10.30595/dinamika.v13i1.8827>
- Sari, L. D. K., & Wardani, K. W. (2021). Development of digital picture story books to improve students' responsible character in elementary schools. *Jurnal Basicedu*, 5(4), 1968–1977. <https://doi.org/10.31004/basicedu.v5i4.1138>
- Septinaningrum, S., Hakam, K. A., Setiawan, W., Agustin, M., Sopandi, W., & Surur, A. S. (2021). Technology of Holobox Augmented Reality Grebeg Pancasila rite for Mathematics learning in Elementary School. *Journal of Physics: Conference Series*, 1869(1). <https://doi.org/10.1088/1742-6596/1869/1/012119>
- Subanji, S., Nusantara, T., Sukoriyanto, S., & Atmaja, S. A. A. (2023). Student's creative model in solving mathematics controversial problems. *Jurnal Cakrawala Pendidikan*, 42(2), 310–326. <https://doi.org/10.21831/cp.v42i2.55979>
- Sulistiyawati, E., Puspitasari, D., Saidah, Z. N., & Rofiqoh, I. (2021). Manipulative learning media based on STEM (Science, Technology, Engineering, and Mathematics) to improve student learning outcomes. *MaPan: Jurnal Matematika Dan Pembelajaran*, 9(1), 1–13. <https://doi.org/10.24252/mapan.2021v9n1a1>
- Sulthon, M., Pujiastuti, P., & Retnawati, H. (2021). What is the teacher's challenge on the developing of learning media to increase critical thinking ability and the character? *Jurnal Prima Edukasia*, 9(1), 55–64. <http://dx.doi.org/10.21831/jpe.v9i1.34876>
- Suryaningrat, E. F., Muslihah, N. N., Pujiasti, D. A., & Adiredja, R. K. (2021). The influence of lectora inspire-based interactive learning media on students' learning motivation and mathematical reasoning abilities in primary schools. *Journal of Physics: Conference Series*, 1987(1). <https://doi.org/10.1088/1742-6596/1987/1/012035>
- Suryatin, S., & Sugiman, S. (2019). Comic book for improving the elementary school students' mathematical problem solving skills and self-confidence. *Jurnal Prima Edukasia*, 7(1), 58–72. <https://doi.org/10.21831/jpe.v7i1.10747>
- Syamsi, I., & Dharma, D. S. A. (2023). Identification and academic assessment models for students with specific learning difficulties in inclusive elementary schools. *Jurnal Prima Edukasia*, 11(1), 16–29. <https://doi.org/10.21831/jpe.v11i1.51927>
- Triwahyuningtyas, D., Setiawan, O. Y., & Mahmuda, N. E. (2022). Module of cube and beam based on inquiry for five grade students at elementary school. *Jurnal Prima Edukasia*, 10(2), 138–148. <https://doi.org/10.21831/jpe.v10i2.48194>
- Utomo, G. M., Setiawan, B., Rachmatdullah, R., & Iasha, V. (2021). What kind of learning media do you want? need analysis on elementary school online learning. *Jurnal Basicedu*, 5(5), 4299–4305. <https://jbasic.org/index.php/basicedu%0AWhat>
- Widiastuti, A., Supriatna, N., Disman, D., & Nurbayani, S. (2023). The urgency of social-creativepreneurship competency in social studies learning during the Covid-19 pandemic: Teacher's perception. *Jurnal Cakrawala Pendidikan*, 42(2), 470–482. <https://doi.org/10.21831/cp.v42i2.45754>
- Yasa, A. D., Suastika, I. K., & Ningtyas, N. V. W. (2020). Development of Learning Media

**Jurnal Prima Edukasia, 11 (2), 185**  
Mersty Rindengan

Pansirbongpas for the Operation of Fraction Numbers for Grade 4 Elementary. *Jurnal Ilmiah Sekolah Dasar*, 4(3), 515–523.  
<https://ejournal.undiksha.ac.id/index.php/JISD/index%0ADevelopment>