



Learning Media Improves Achievement Learning Science of Fourth Grade Elementary School Students

Nadrah Nadrah 1* 

¹ Elementary School Teacher Education Lecturer, FKIP Muhammadiyah University Makassar, Makassar, Indonesia

ARTICLE INFO

Article history:

Received November 07, 2022

Accepted March 24, 2023

Available online May 25, 2023

Kata Kunci:

Media Pembelajaran, Prestasi Belajar, Ipa

Keywords:

Learning Media, Learning Performance, Science



This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

Copyright © 2023 by Author. Published by Universitas Pendidikan Ganeshha.

ABSTRAK

Saat ini penggunaan penggunaan media pembelajaran kurang diperhatikan oleh guru dalam melakukan kegiatan pembelajaran. Tujuan dilakukannya penelitian ini adalah memaksimalkan tingkat prestasi belajar IPA siswa kelas IV SD yang diajar menggunakan menggunakan media pembelajaran dan menganalisis penggunaan media pembelajaran terhadap prestasi belajar IPA siswa kelas IV SD. Penelitian ini menggunakan pendekatan eksperimen dengan desain komparatif. Populasi sekaligus sampel penelitian ini berjumlah 80 siswa kelas IV SD. Metode pengumpulan data menggunakan teknik dokumentasi dan tes. Instrumen pengumpulan data menggunakan kuesioner dan lembar tes. Teknik analisis data yang digunakan adalah analisis statistik deskriptif dan analisis statistik inferensial dengan rumus uji-t. Hasil yang diperoleh adalah tingkat setelah pembelajaran umumnya berada pada kategori kurang. Pada kelompok eksperimen sebelum pembelajaran umumnya berada pada kategori kurang dan setelah pembelajaran meningkat menjadi cukup baik. Kesimpulan dari penelitian ini yaitu terdapat dampak positif penggunaan media pembelajaran terhadap kinerja siswa. Kelompok siswa yang diberikan pembelajaran menggunakan media lebih cenderung menunjukkan peningkatan kinerja belajar dibandingkan siswa yang diajar tidak menggunakan media pembelajaran.

ABSTRACT

At present, teachers need to pay more attention to the use of learning media in carrying out learning activities. This research aimed to maximize the level of science learning achievement of fourth graders taught using instructional media and analyze the use of instructional media on science learning achievement in fourth graders of elementary school. This study uses an experimental approach with a comparative design. The population, as well as the sample of this study, amounted to 80 grade IV SD students. Methods of data collection using documentation and test techniques. The data collection instrument used questionnaires and test sheets. The data analysis technique used is a descriptive and inferential statistical analysis using the t-test formula. The results obtained are that the level after learning is generally in the lower category. In the experimental group, before learning was generally in the less category, and after learning increased to be quite good. The conclusion from this study is that there is a positive impact of the use of instructional media on student performance. Groups of students who were given learning using media were more likely to show an increase in learning performance compared to students who were taught not to use learning media.

1. INTRODUCTION

In education national, student always sued for increase performance learn it practice is description ability students at school, good in aspect cognitive, affective nor psychomotor (Andriyani & Suniasih, 2021; Astuti & Suryani, 2022; Puriasih & Trisna, 2022). Achievement study always Becomes issue actual , interesting and important education for researched , good from circle educator nor observer education from all element society (Sahronih et al., 2019; Sari et al., 2022). Problem performance study interesting, current, and important because the achievement data study are : indicators quality and quantity , symbol fulfillment curiosity, as internal criteria (height low productivity school and as criteria external tall low ability for success to in society, become stimulant and angler or pusher and puller in enhancement knowledge and technology, and become indicator power absorption and intelligence (Cahyani & Jayanta, 2021; Sexcio & Dafit, 2022; Tembang et al., 2020). If connected with institution formal education, then performance learning achieved students at school could made indicator success study student success system education and teaching in schools , and prediction success students in the community who will come (Angraini et al., 2021; Wahyuni et al., 2021). However so, in effort enhancement performance study student, then various component education very determine, ok aspects of teachers, students , curriculum, facilities learning, no except factor completeness of appropriate learning media with demands curriculum or class

*Corresponding author.

E-mail addresses: nadrah@unismuh.ac.id (Nadrah Nadrah)

taught with no using learning media of course will make condition learn different with student or class taught with using learning media (Sulaksana et al., 2021; Vivi Erpianti et al., 2021; Yolanda et al., 2022).

This thing means student or class taught with using learning media, students will have opportunity for dominate Theory the lessons taught by science teachers are compared with student or class taught with no using learning media (Hastuti et al., 2019; Ntobuo et al., 2018; Pambudi et al., 2019; Suana et al., 2017). Related with thing that, then should be every teacher must capable use learning media in accordance with demands curriculum. Such as the case in the field study science at school basic, and if the learning media in accordance with demands curriculum, Like the case in the field study science at school basic, and if the learning media no could provided by the school, then the field teacher studies could make it alone with simple shape in accordance ability student in accept Theory lesson related with the learning media used (Kuncoro & Hidayati, 2021; Mutia et al., 2018; Permana & Nourmavita, 2017).

Measurement, weighing, counting, and other activities that serve as fundamental science must be thoroughly learned by pupils starting at the primary school level because there are numerous problems and activities in life that must be solved. However, despite the teacher's best efforts, the students' learning experiences particularly those related to science have not yielded the expected improvements in IPA knowledge competency. According to information acquired from the UPT Youth and Sports Education Office in Makassar, the average student score in science in 2019 was 65.55, falling into category C. This outcome is lower than the category B average for other disciplines like social studies and Indonesian.

Using Permendikbud No. 24 of 2016 as a primary source, the scope of science education in elementary schools covers topics such as the human body and the five senses, plants and animals, the nature and form of objects in the immediate environment, the universe and its appearance, the external forms of animals' and plants' bodies, the life cycle of living things, plant reproduction, the form of objects, force and motion, forms and sources of energy, and energy. This thing very important for field science studies as one of the field full study with the media used, so that the learning process could in progress smooth and maximal, especially student class IV SD Inpres Tidung 2 Makassar school basic still see level ability low in understand.

Media is a tool that supports learning to run well (Hartini et al., 2017; Mustofa & Syafi'ah, 2018; Ulfaeni et al., 2018). Media can also be interpreted as a link between the giver and the recipient of information. Using media as a link between educators and students is learning (Diyantari et al., 2020; Putri et al., 2021; Wardani & Syofyan, 2018). In other words, active learning requires media support to deliver the material they will learn (Kurniawan et al., 2018; Suparmi, 2018). Learning is not just conveying information or knowledge but conditioning students to learn because the main goal of learning is the learner himself. So learning is the interaction process between educators and students as well as learning resources and media used to change cognitive, affective and motor aspects. Therefore, in order for learning activities to be meaningful for students, educators need to develop learning media that are varied and attractive to students (Lukman et al., 2019; Masturah et al., 2018).

Previous research results indicate a significant variation between students' abilities before and after using instructional media (Dwiyi et al., 2020; Masturah et al., 2018; Wulandari et al., 2020). In line with the results of previous studies showing that there is a difference in the average cognitive achievement of students which is better when compared to not using learning media (Andriana et al., 2017; Khasanah et al., 2021; Y. Wulandari et al., 2020). Other studies have also revealed that learning media can increase student enthusiasm for learning (Ayuni et al., 2017; Paramita et al., 2018). Media has a contribution to improving the quality and quality of learning. The presence of the media helps educators convey their teaching material and provides added value to learning activities. This research aimed to maximize the science learning achievement of fourth graders of elementary school who were taught using instructional media and to analyze the use of instructional media on the science learning achievement of fourth graders.

2. METHOD

Study this use approach experiment with design comparative (Sugiyono, 2013). That is, research this study comparison performance study students on the eyes 4th grade science lesson at SD Inpres Tidung 2 Makassar, good student group experiment nor group control, good before nor after learning (treatment). Population study this is whole student class IV SD Inpres Tidung 2 Makassar consisting of on class IV.A and IV.B respectively as many as 40 people (80 people). With consideration that study this is study comparative with population limited, then set for no conducted withdrawal sample. for determination the class that becomes group control and experiment conducted with method lottery, and from results lottery the it turns out class I VA at SD Inpres Tidung 2 Makassar set as group control and class class IV .B at SD Inpres Tidung 2 Makassar set as group experiment .Data analysis techniques used is analysis statistics descriptive and

analysis statistics inferential (Permatasari et al., 2022). Grid of Students' Science Learning Achievement Test questions showed in Table 1.

Table 1. Grid of Students' Science Learning Achievement Test Questions

No	Indicator	Aspects that are measured	Number About
1	Smoothness	Student with fluent understand problem and write known things in question .	1
2	Flexibility	Student could give strategy or method in answer question .	4
3	Authenticity	Student could give new , unique , and ideas capable produce different combinations with the others .	3
4	Elaboration	Student could write idea or answer with steps detailed solutions and detail .	2,5

Analysis descriptive meant for describe level performance study students in the field of group science study control and group experiment, ok results pretest nor posttest. For interest that, then made table distribution frequency and percentage, then conducted calculation average for measure level performance study student before and after good treatment _ group control nor group experiment. Analysis statistics inferential meant for test hypothesis with using the t-test, namely compare performance study student group control and group experiment, with the formula proposed by. Criteria testing is received null hypothesis (Ho) if t count more small than t table at level 5% significance with certain dk or received hypothesis alternative (H1) if value of t count more big or same with t table at level 5% significance with certain dk (Dewi & Sujana, 2021).

3. RESULT AND DISCUSSION

Result

Following this performance data presented study student group control before and after student learning class IV SD Inpres Tidung 2 Makassar in form table distribution frequency and percentage , with based on result data research , which is shared into five categories , namely : less from < 5 with category fail , 5.50-6.49 with category not enough good , 6.50-7.99 with category enough good , 8.00-8.99 with category good , and 9.00-10.00 with category very good. Achievements Study group science Control Before and After Learning showed in Table 2.

Table 2. Achievements Study Group Science Control Before and After Learning

Interval	Learning Achievement	Pretest		Posttest	
		F	%	F	%
9.00 – 10.00	Very good	0	0	0	0
8.00 – 8.99	Well	3	7.50	4	10.00
6.50 – 7.99	Pretty good	10	25.00	12	30.00
5.50 – 6.99	Not good	20	50.00	21	52.50
< 5.50	Not good	7	17.50	3	7.50
	Amount	40	100.00	40	100.00

Performance study student class IV.A (group control) pretest and posttest results general is in category not enough good . Thing that could seen from frequency highest at the pretest as many as 20 respondents or 50.00 percent and then after learning 4 times meeting however no using learning media and the results no show significant increase. Even there are 7 respondents or 17.50 percent have score pretest in category fail pretest results and 3 respondents or 7.50 percent posttest results. That thing strengthened with the average value of the pretest results is 6.15 and then the posttest is 6.43 percent, which means on average there enhancement with 0.28 deviation. Following this performance data presented study student group experiment before and after learning with using learning media on students class IV.B in form table distribution frequency and percentage , which is divided category not enough good , 6.50-7.99 with category enough good , 8.00-8.99 with category good , and 9.00-10.00 with category very good. Achievements Study Group Science Experiment Before and After Learning showed in Table 3.

Table 3. Achievements Study Group Science Experiment Before and After Learning

interval	Learning achievement	Presets		Posttest	
		F	%	F	%
9.00 – 10.00	Very good	0	0	1	2.50
8.00 – 8.99	Well	2	500	7	17.50
6.50 – 7.99	Pretty good	11	2750	19	47,50
5.50 – 6.49	Not good	21	5250	12	30.00
< 5.50	Not good	6	1500	1	2.50
	Amount	40	100.00	40	100.00

Performance study student class IV.B (group experiment) the results of the pretest and posttest general show existence significant improvement that is less than average good be average enough good. Thing that could seen from frequency highest moment pretest 21 respondents or 52.50 percent with an average value of 6.20, and so on after learning 4 times meeting with using learning media in the form of learning media and the results show significant improvement because the average posttest results are average enough good (6.88), which means there is deviation of 0.068. Even after the pretest, there are students who have performance study in category very good although new reach 1 respondent or 2.50 percent, while enough good as many as 7 respondents or 17.50 percent previously at pretest only 2 respondents or 5.00 percent. This thing also reinforced with score performance study student when the pretest there are 6 respondents stated fail however when the posttest only 1 respondent or 2.50 percent who have performance study not enough of 5.50 (fail).

Hypothesis (Ho) research this is " no " there is impact positive use of learning media to performance study students in the field of 4th grade science study at SD Inpres Tidung 2 Makassar". Based on results calculation with t-test, obtained value of t count of 2.86 while t table value with dk = 78 at level 5 percent significance, then obtained value of t count of 2,000. Because the value of t count more big than the value of t table , then null hypothesis (Ho) that is " no " there is impact positive use of learning media to performance study students in the field of 4th grade science study at SD Inpres Tidung 2 Makassar" stated rejected , and as consequences on the hypothesis alternative (H1) that is " there is" impact positive use of learning media to performance study students in the field of 4th grade science study at SD Inpres Tidung 2 Makassar" stated accepted . This thing show that for student being taught with using learning media allow have more opportunities many for get level ability in understand Theory lesson so that impact on increasing performance learn, compare with student being taught however no using learning media.

Discussion

Performance study achieved students after conducted test or evaluation is something reflection from level the success of the learning process carried out by the teacher on his students. because of that, use knowing level the success of the learning process, the teacher always must to do test or evaluation, test the no only meant for knowing level performance study students, but could becomes input for teachers in activity learning next (Jazuli et al., 2018; Sexcio & Dafit, 2022; Virgiana & Wasitohadi, 2016). The results of research conducted in the fourth grade of SD Inpres Tidung 2 Makassar which consists of into 2 groups, namely group control (class IV.A) and group experimental (class IV.B) shows existence difference performance study, especially after conducted learning, where the group control taught field Science study as much as 4 meetings with no using learning media same once, while group experiment taught with using learning media although nature still very simple.

Achievement value study group control moment the average pretest is less well, and after conducted learning with no using learning media by general no show significant improvement or permanent in category not enough good. Thing this show activity learning without supported by capable learning media motivate or stimulate power think student, then difficult achieved something results maximum learning (Agustin et al., 2019; Anjelina Putri et al., 2018; Kurniawati et al., 2019). Another thing with student or group student being taught with using learning media so student could stimulated power he thought at a time could interesting interest student for study by maximum, and the result show significant increase (Masturah et al., 2018; Putri et al., 2021). That thing proven from level performance learning achieved student during the pretest with an average of less fine, however after learning with using learning media, and then given test (posttest) then result shows the average gain high score (Masturah et al., 2018; Mustika & Ain, 2020).

If analyzed from difference in average performance study student Among group control that doesn't experience enhancement whereas group experiment show increase in average performance study, then real that there is impact positive use of media in activity learning even though the media still simple, will but very useful for optimizing the learning process. This thing strengthened with received hypothesis

research that shows existence impact positive use of learning media to performance study students (Dwiqi et al., 2020; Wulandari et al., 2020). Using learning media in the learning process can generate new desires and interests, generate motivation and stimulate learning activities, and even psychologically influence students (Andriana et al., 2017; Khasanah et al., 2021). The function of learning media can help make learning easier for students and educators, provide more real experiences (abstract becomes concrete), attract students' attention and interest in learning, and can evoke equating between theory and reality (Hidayah et al., 2018; Nursamsu & Kusnafizal, 2017). Based on the results of relevant research conducted by experts, the results of this study prove the need for a teacher to always use instructional media even though they are simple in nature adapted to students' abilities to understand the learning media used, as is the case with fourth grade students at SD Inpres Tidung 2 Makassar.

4. CONCLUSION

The use of effective learning media is expected so that students can understand well the theoretical lessons being taught. The results showed that the level of student achievement in class IV SD Inpres Tidung 2 Makassar increased to very good. The results showed that there was a positive effect of the use of media on the value of learning achievement, which is known to have a positive impact on the use of learning media on student achievement in science learning class 4 SD Inpres Tidung 2 Makassar "The theory of the lesson given so that it has an impact on increasing learning achievement, compared to students who study but do not use learning media.

5. REFERENCES

- Agustin, N. K. T. J., Margunayasa, I. G., & Kusmaryatni, N. N. (2019). Pengaruh Model Pembelajaran Tps Berbantuan Media Visual Terhadap Hasil Belajar Ipa. *Journal for Lesson and Learning Studies*, 2(2), 239–249. <https://doi.org/10.23887/jlls.v2i2.19148>.
- Andriana, E., Syachruji, A., Alamsyah, T. P., & Sumirat, F. (2017). Natural science Big Book with Baduy local wisdom base media development for elementary school. *Jurnal Pendidikan IPA Indonesia*, 6(1), 76–80. <https://doi.org/10.15294/jpii.v6i1.8674>.
- Andriyani, N. L., & Suniasih, N. W. (2021). Development of Learning Videos Based on Problem-Solving Characteristics of Animals and Their Habitats Contain in Ipa Subjects on 6th-Grade. *Journal of Education Technology*, 5(1), 37. <https://doi.org/10.23887/jet.v5i1.32314>.
- Angraini, S., Fitria, H., & Setiawan, A. A. (2021). The Effect of Teacher Performance and Learning Media on Learning Outcomes of Elementary School Students. *Journal of Social Work and Science Education*, 2(2), 137–146. <https://doi.org/10.52690/jswse.v2i2.237>.
- Anjelina Putri, A. A., Swatra, I. W., & Tegeh, I. M. (2018). Pengaruh Model Pembelajaran PBL Berbantuan Media Gambar Terhadap Hasil Belajar Ipa Siswa Kelas Iii Sd. *Mimbar Ilmu*, 23(1). <https://doi.org/10.23887/mi.v23i1.16407>.
- Astuti, R., & Suryani, E. (2022). The Effect Of Cooperative Script Learning Model Assisted By Flashcard Image Media On The Ability To Understand Natural Science (Ipa) Concept Of Students In Class Iv Elementary School. *Jurnal Pendidikan Dasar Nusantara*, 8(1), 128–139. <https://doi.org/10.29407/jpdn.v8i1.18124>.
- Ayuni, I. A. S., Kusmaryatni, N., & Japa, I. G. N. (2017). Pengaruh Model Pembelajaran Talking Stick Berbantuan Media Question Box Terhadap Hasil Belajar IPA Kelas V. *Journal of Education Technology*, 3(1). <https://doi.org/10.23887/jet.v1i3.12503>.
- Cahyani, N. L. aParamita, & Jayanta, I. N. L. (2021). Digital Literacy-Based Learning Video on the Topic of Natural Resources and Technology for Grade IV Elementary School. *Jurnal Ilmiah Sekolah Dasar*, 5(3), 538. <https://doi.org/10.23887/jisd.v5i3.37918>.
- Dewi, N. L. P. J., & Sujana, I. W. (2021). Learning Multimedia Based on RPG Maker MV Material for Circumference and Area of Flat Shapes for Elementary School Students. *Journal of Education Technology*, 5(3), 365. <https://doi.org/10.23887/jet.v5i2.34462>.
- Diyantari, I. A. K. D., Wiyasa, N., & Manuaba, S. (2020). Model Snowball Throwing Berbantuan Media Pop Up Book Berpengaruh Terhadap Kompetensi Pengetahuan Ipa. *Jurnal Ilmiah Pendidikan Profesi Guru*, 3(1), 9–21. <https://doi.org/10.23887/jipppg.v3i1.26973>.
- Dwiqi, G. C. S., Sudatha, I. G. W., & Sukmana, A. I. W. I. Y. (2020). Pengembangan Multimedia Pembelajaran Interaktif Mata Pelajaran IPA Untuk Siswa SD Kelas V. *Jurnal Edutech Undiksha*, 8(2), 33. <https://doi.org/10.23887/jeu.v8i2.28934>.
- Hartini, S., Misbah, Dewantara, D., Oktovian, R. A., & Aisyah, N. (2017). Developing learning media using online prezi into materials about optical equipments. *Jurnal Pendidikan IPA Indonesia*, 6(2), 313–

317. <https://doi.org/10.15294/jpii.v6i2.10102>.
- Hastuti, H. W., Baedowi, S., & Mushafanah, Q. (2019). Keefektifan Model Pembelajaran Numbered Heads Together Berbantu Media Panelpa (Papan Flanel IPA) Terhadap Hasil Belajar. *International Journal of Elementary Education*, 3(2), 108–115. <https://doi.org/10.23887/ijee.v3i2.18513>.
- Hidayah, P., Untari, M. F. A., & Wardana, M. Y. S. (2018). Pengembangan Media Sepeda (Sistem Peredaran Darah) dalam Pembelajaran IPA di Sekolah Dasar. *International Journal of Elementary Education*, 2(4), 306–310. <https://doi.org/10.23887/ijee.v2i4.16109>.
- Jazuli, M., Azizah, L. F., & Meita, N. M. (2018). Pengembangan Bahan Ajar Elektronik Berbasis Android Sebagai Media Interaktif. *LENSA (Lentera Sains): Jurnal Pendidikan IPA*, 7(2), 47–65. <https://doi.org/10.24929/lensa.v7i2.22>.
- Khasanah, N., Ngazizah, N., & Anjarini, T. (2021). Pengembangan Media Komik Dengan Model Problem Based Learning Pada Materi Daur Hidup Hewan Kelas IV SD. *Jurnal Pendidikan Dasar*, 2(1), 25–35. <https://doi.org/10.37729/jpd.v2i1.951>.
- Kuncoro, I. A., & Hidayati, Y. M. (2021). Learning Videos Increase Students' Cognitive Learning Outcomes on Animal Life Cycle Materials. *Jurnal Ilmiah Sekolah Dasar*, 5(2), 299. <https://doi.org/10.23887/jisd.v5i2.34107>.
- Kurniawan, D., Kuswandi, D., & Husna, A. (2018). Pengembangan Media Video Pembelajaran Pada Mata Pelajaran Ipa Tentang Sifat Dan Perubahan Wujud Benda Kelas Iv Sdn Merjosari 5 Malang. *JINOTEP (Jurnal Inovasi dan Teknologi Pembelajaran) Kajian dan Riset dalam Teknologi Pembelajaran*, 4(2), 119–125. <https://doi.org/10.17977/um031v4i22018p119>.
- Kurniawati, H. A., Kuswanto, H., Kimianti, F., & Pamungkas, W. (2019). Pengaruh Berat Beban pada Lengan terhadap Gaya Otot Bisep Sebagai Media Pembelajaran IPA Konsep Bioekanika. *Indonesian Journal Of Applied Physics*, 9(01), 16. <https://doi.org/10.13057/ijap.v9i01.25544>.
- Lukman, A., Hayati, D. K., & Hakim, N. (2019). Pengembangan Video Animasi Berbasis Kearifan Lokal pada Pembelajaran IPA Kelas V di Sekolah Dasar. *Elementary: Jurnal Ilmiah Pendidikan Dasar*, 5(2), 153. <https://doi.org/10.32332/elementary.v5i2.1750>.
- Masturah, E. D., Mahadewi, L. P. P., & Simamora, A. H. (2018). Pengembangan Media Pembelajaran Pop-Up Book pada Mata Pelajaran IPA Kelas III Sekolah Dasar. *Jurnal EDUTECH Universitas Pendidikan Ganesha*, 6(2), 212–221. <https://doi.org/10.23887/jeu.v6i2.20294>.
- Mustika, D., & Ain, S. Q. (2020). Peningkatan Kreativitas Mahasiswa Menggunakan Model Project Based Learning dalam Pembuatan Media IPA Berbentuk Pop Up Book. *Jurnal Basicedu*, 4(4), 1167–1175. <https://doi.org/10.31004/basicedu.v4i4.518>.
- Mustofa, R., & Syafi'ah, R. (2018). Pengembangan Media Pembelajaran Pop Up Book Materi Kenampakan Permukaan Bumi Mata Pelajaran IPA Kelas III SD. *ELSE (Elementary School Education Journal)*, 2, 30–41. <https://doi.org/10.30651/else.v2i2.1723>.
- Mutia, R., Adlim, A., & Halim, A. (2018). Pengembangan Video Pembelajaran Ipa Pada Materi Pencemaran Dan Kerusakan Lingkungan. *Jurnal Pendidikan Sains Indonesia*, 5(2), 110–116. <https://doi.org/10.24815/jpsi.v5i2.9825>.
- Ntobuo, N. E., Arbie, A., & Amali, L. N. (2018). The Development of Gravity Comic Learning Media Based on Gorontalo Culture. *Jurnal Pendidikan IPA Indonesia*, 7(2), 246–251. <https://doi.org/10.15294/jpii.v7i2.14344>.
- Nursamsu, N., & Kusnafizal, T. (2017). Pemanfaatan Media Pembelajaran Ict Sebagai Kegiatan Pembelajaran Siswa Di Smp Negeri Aceh Tamiang. *Jurnal IPA & Pembelajaran IPA*, 1(2), 165–170. <https://doi.org/10.24815/jipi.v1i2.9691>.
- Pambudi, B., Efendi, R. B., Novianti, L. A., Novitasari, D., & Ngazizah, N. (2019). Pengembangan Alat Peraga IPA dari Barang Bekas untuk Meningkatkan Motivasi Belajar dan Pemahaman Siswa Sekolah Dasar. *Indonesian Journal of Primary Education*, 2(2), 28. <https://doi.org/10.17509/ijpe.v2i2.15097>.
- Paramita, R., Ganda, R., Panjaitan, P., Ariyati, E., & Paramita, R. (2018). Pengembangan Booklet Hasil Inventarisasi Tumbuhan Obat Sebagai Media Pembelajaran Pada Materi Manfaat Keanekaragaman Hayati. *Jurnal IPA & Pembelajaran IPA*, 02(02). <https://doi.org/10.24815/jipi.v2i2.12389>.
- Permana, E. P., & Nourmavita, D. (2017). Pengembangan Multimedia Interaktif Pada Mata Pelajaran Ipa Materi Mendeskripsikan Daur Hidup Hewan Di Lingkungan Sekitar Siswa Kelas Iv Sekolah Dasar. *Jurnal PGSD*, 10(2), 79–85. <https://doi.org/10.33369/pgsd.10.2.79-85>.
- Permatasari, D., Sudibyo, E., & Budiyanto, M. (2022). The Effect Of Cooperative Model Type Of Student Team Achievement Division (Stad) Assisted With Video Media Learning On The Interaction Of Living Things With Their Environment On Student Learning Outcomes. *Jurnal Penelitian Pendidikan IPA*, 7(1), 40–46. <https://doi.org/10.26740/jppipa.v7n1.p40-46>.
- Puriasih, K. N., & Trisna, G. A. P. S. (2022). Digital Comics Learning Media Based on Problem Based Learning in Science Subjects for Fourth Grade Elementary School. *MIMBAR PGSD Undiksha*, 10(2), 367–375.

- <https://doi.org/10.23887/jjgsd.v10i2.48575>.
- Putri, L. G. R. A., Japa, I. G. N., & Riastini, P. N. (2021). Media Pembelajaran Videoscribe-Hots Bermuatan IPA Pada Topik Struktur Dan Fungsi Bagian Tumbuhan Kelas IV SD. *Mimbar Ilmu Undiksha*, 26(3), 451–460. <https://doi.org/10.23887/mi.v26i3.38830>.
- Sahronih, S., Purwanto, A., & Sumantri, M. S. (2019). The Effect of Interactive Learning Media on Students' Science Learning Outcomes. *Proceedings of the 2019 7th International Conference on Information and Education Technology - ICIET 2019*, 20–24. <https://doi.org/10.1145/3323771.3323797>.
- Sari, P., Ni Ketut Srie Kusuma, W., & Ni Made, M. (2022). Multimedia-Assisted Genrative Learning Model Towards Ipa Learning Satisfaction In Students Of Grade Iv Elementary School Achievement School Year 2020/2021. *Adi Widya: Jurnal Pendidikan Dasar*, 7(1), 38–45. <https://doi.org/10.25078/aw.v7i1.777>.
- Sexcio, E. B., & Dafit, F. (2022). Card Macth Circle: Innovative Learning Media on Social Science Learning in Grade IV Elementary School. *Journal of Education Technology*, 6(1). <https://doi.org/10.23887/jet.v6i1.41820>.
- Suana, W., Maharta, N., Nyeneng, I. D. P., & Wahyuni, S. (2017). Design and implementation of Schoology-based blended learning media for basic Physics I course. *Jurnal Pendidikan IPA Indonesia*, 6(1). <https://doi.org/10.15294/jpii.v6i1.8648>.
- Sugiyono. (2013). Metode Penelitian Pendidikan. In *Alfabeta*.
- Sulaksana, M. D., Yudiana, K., & Simamora, A. H. (2021). Learning Circumference and Area of Building with Video Media for Fourth Class Students of Elementary School. *Jurnal Ilmiah Sekolah Dasar*, 5(4), 697. <https://doi.org/10.23887/jisd.v5i4.40129>.
- Suparmi, S. (2018). Penggunaan Media Komik Dalam Pembelajaran IPA di Sekolah. *Journal of Natural Science and Integration*, 1(1), 62–68. <https://doi.org/10.24014/jnsi.v1i1.5196>.
- Tembang, Y., Purwanty, R., Palobo, M., & Kabrahanubun, R. I. (2020). Development of Interactive Based Powerpoint Learning Media In The Class Iv Students Of Merauke Basic School. *Proceedings of the 4th International Conference on Learning Innovation and Quality Education*, 1–6. <https://doi.org/10.1145/3452144.3452281>.
- Ulfaeni, S., Wakhyudin, H., & Saputra, H. J. (2018). Pengembangan Media Monergi (Monopoli Energi) Untuk Menumbuhkan Kemampuan Pemahaman Konsep Ipa Siswa Kelas III SDN Pedurungan Kidul 02 Semarang. *Profesi Pendidikan Dasar*, 1(2), 143. <https://doi.org/10.23917/ppd.v1i2.4990>.
- Virgiana, A., & Wasitohadi. (2016). Efektivitas Model Problem Based Learning Berbantuan Media Audio Visual Ditinjau Dari Hasil Belajar IPA Siswa Kelas 5 SDN 1 Gadu Sambong - Blora Semester 2 Tahun 2014/2015. *Scholaria: Jurnal Pendidikan dan Kebudayaan*, 6(2), 100–118. <https://doi.org/10.24246/j.scholaria.2016.v6.i2.p100-118>.
- Vivi Erpanti, Meiliana Nurfitriani, & M Fahmi Nugraha. (2021). The Effect of The Numbered Head Together Learning Model on Student Achievement in Science Subjects Style Class IV SDN 3 Sukamanah. *Jurnal Sekolah Dasar*, 6(2), 65–72. <https://doi.org/10.36805/jurnalsekolahdasar.v6i2.1414>.
- Wahyuni, N. L. P. I., Sudatha, I. G. W., & Jayanta, I. N. L. (2021). The Use of Tutorial Video in Learning Energy Sources. *International Journal of Elementary Education*, 5(2), 479. <https://doi.org/10.23887/ijee.v5i3.36596>.
- Wardani, R. K., & Syofyan, H. (2018). Pengembangan Video Interaktif pada Pembelajaran IPA Tematik Integratif Materi Peredaran Darah Manusia. *Jurnal Ilmiah Sekolah Dasar*, 2(4), 371. <https://doi.org/10.23887/jisd.v2i4.16154>.
- Wulandari, I. G. A. A. M., Sudatha, I. G. W., & Simamora, A. H. (2020). Pengembangan Pembelajaran Blended Pada Mata Kuliah Ahara Yoga Semester II di IHDN Denpasar. *Jurnal Edutech Undiksha*, 8(1), 1. <https://doi.org/10.23887/jeu.v8i1.26459>.
- Wulandari, Y., Ruhiat, Y., & Nulhakim, L. (2020). Pengembangan Media Video Berbasis Powtoon pada Mata Pelajaran IPA di Kelas V. *Jurnal Pendidikan Sains Indonesia*, 8(2), 269–279. <https://doi.org/10.24815/jpsi.v8i2.16835>.
- Yolanda, S., Winarni, R., & Yulisetiani, S. (2022). The New Way Improve Learners' Speaking Skills: Picture and Picture Learning Media Based on Articulate Storyline. *Journal of Education Technology*, 6(1), 173. <https://doi.org/10.23887/jet.v6i1.41452>.